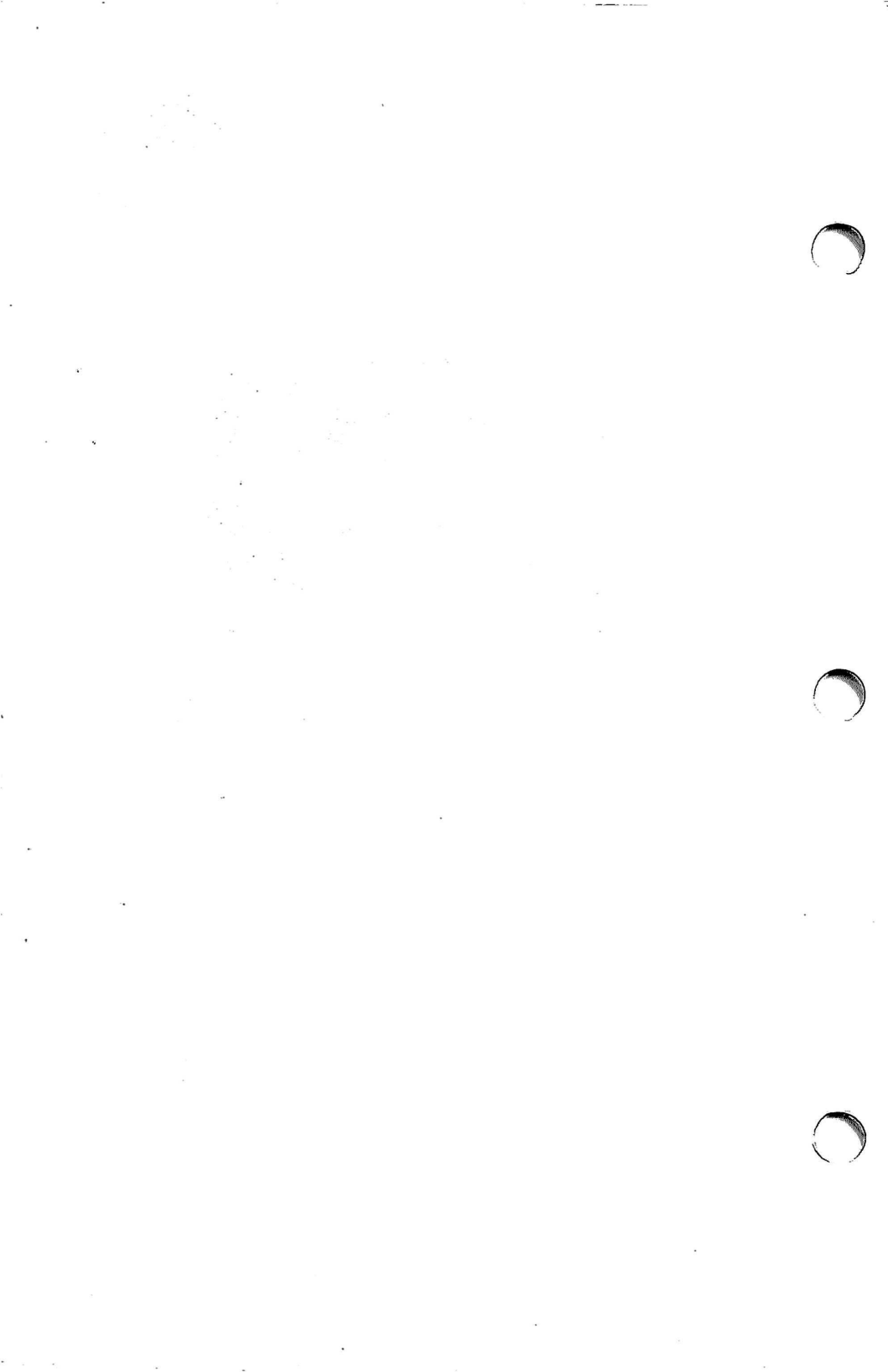


5

CHAPTER

Learning to Use SuperCalc3



Learning to Use SuperCalc3

Before reading this chapter, you should go through the examples in the *10 minutes* booklet. Once this gives you a feeling for what SuperCalc3 can do, you can begin to explore the program's computing power in more detail.

The lessons concentrate on typical examples of tasks you can accomplish with SuperCalc3. You'll have plenty of opportunity to put SuperCalc3 to work. Each lesson serves as an introduction to a different set of features, and demonstrates their flexibility via a series of *action steps*. The lessons provide an introduction to SuperCalc3 — they do not explore every option. Consult the Reference section for complete information about each SuperCalc3 feature.

See Chapter 1 for *Getting Started* instructions.

Reminder: Illustrations in these lessons assume an 80-column setting on your screen. Prompts, menus, spreadsheets, graphs, and help screens display differently with a 40-column setting.

Lesson 1

Control and Display Characteristics

The *10 minutes* booklet gave you a taste of how productive you can be with SuperCalc3. This lesson will help you explore in more detail the mechanics of working with spreadsheets.

These are some notations you will find in the lessons:

- Each action step you are asked to take is preceded with the symbol ►.
- What you must type as an entry is shown in **bold**. The program accepts commands and data in either upper or lower case. For example, if you are asked to type **A1**, you can type **a1**.

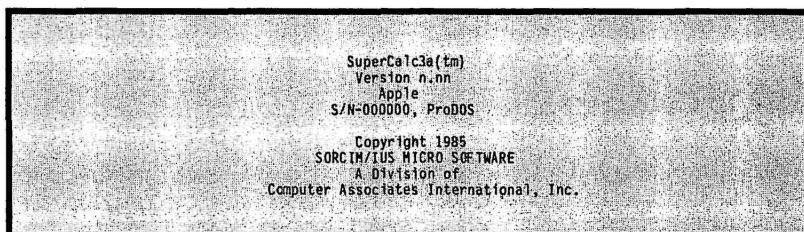
Ready? Here are your first action steps if you have an Apple IIc (if you have an enhanced Apple IIe, see the *Getting Started* chapter for startup instructions):

- Set your 80/40 column switch to 80 columns if using a standard monitor, or 40 columns if using a television set as a monitor.
- Put your working copy of the SuperCalc3 /PROGRAM disk into your computer drive 1, then turn on the computer and monitor.

SuperCalc3 loads into the computer memory automatically. The first display on your screen is a date prompt.

- Enter today's date in the form DD-MMM-YY, such as 05-MAR-85.

The SuperCalc3 copyright screen (looking something like the illustration below) appears on your console display.

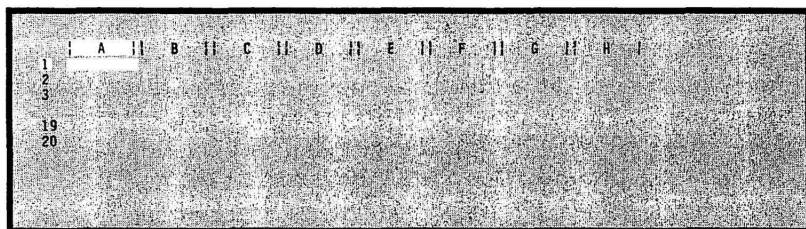


Screen 5-1: Copyright Screen

Details unique to your version and disk will differ on your display.

- Press **[RETURN]**.

An empty spreadsheet appears.



Screen 5-2: Empty Spreadsheet

Moving the Current Cell Around the Spreadsheet

The spreadsheet cursor designates the *current cell*, the location eligible to receive an entry. In the *10 minutes* booklet you learned how to move the cursor with the arrow keys, and that you can also use *Control* keys. For example, hold down Control and type D (or d) to move the cursor right one character.

The GoTo Command

You also learned to use the *GoTo* command (=) to move the current cell by entering the column letter and the row number. Like coordinates on a map, this unique *address* identifies the desired location on your spreadsheet.

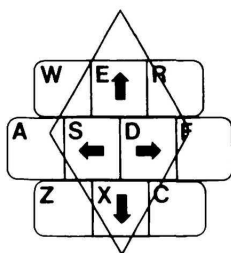


Illustration 5-1: Cursor Control Keys

Note that if you enter a letter without a number, the program assumes you want to go to row 1. For example, [=] **C [RETURN]** would take you to C1. If you enter a number without a letter, the program assumes you want to go to column A. For example, [=] **4 [RETURN]** would take you to A4.

You can use the *GoTo* command in another way:

- ▶ Move the current cell to anywhere near the middle of the screen, say to E8.
- ▶ Enter (=) but specify no cell, just press **[RETURN]**.

Notice how the current cell remains E8, and the display window repositions so that E8 appears at the top left corner.

Scrolling

The SuperCalc3 program uses your console display as a *window* through which you can view any area of your spreadsheet. When your spreadsheet is bigger than the screen, you can *scroll* to move the window to different parts of the spreadsheet.

Follow these steps to practice scrolling:

- ▶ Press **[Apple H]** to return to A1, or use the *GoTo* command.

[Apple H] means hold down either *Apple* Key and press *H*.

- ▶ Move the cursor one column to the right beyond the edge of the screen. Notice that the columns on screen shift to the left by one column. The left-most column becomes column B.
- ▶ Try moving the cursor off the screen to the right again, but this time hold the key down.

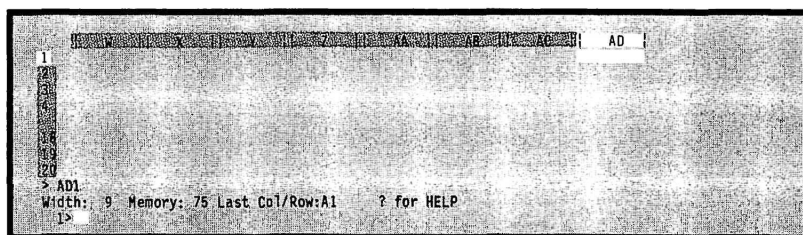
5

CHAPTER

LEARNING TO USE SUPERCALC3

Many keyboards have a built-in *repeat* feature which causes the display to continue scrolling when you hold down an arrow key.

- Continue to *scroll* the screen horizontally past column Z. Note in sample Screen 5-3 that the remaining columns are represented by two letters, AA, AB, and so on. They continue to AZ, then BA and as far as BK.



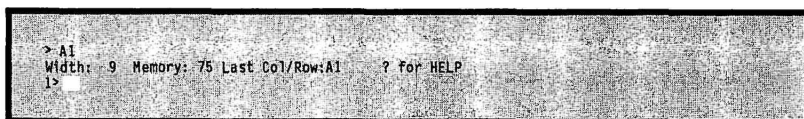
Screen 5-3: Scrolling Past Column Z

- Now scroll down. The bottom edge is row 254.

For information about other key functions that help you move around on the spreadsheet, see Chapter 2.

- Press **[Apple H]** to return to A1.

In the *10 minutes* booklet you learned how to enter some of the / commands and how to enter data into a cell. Throughout the entry process three lines at the bottom of the screen kept you posted on your progress:



The Status Line

The first of these three lines is the *status line*. The first character on the status line is the *direction indicator*, followed by the *current cell address*. To see how the status line works:

- ▶ Move the spreadsheet cursor around, and watch the direction indicator and the *current cell address* change.
- ▶ Press [**Apple H**], type **Income Statement**, and press [**RETURN**].

This tells SuperCalc3 that you have completed a data entry.

- ▶ Move the cursor back to cell A1.

The *data type* and *cell contents* appear on the status line:



5

C H A P T E R

LEARNING TO USE SUPERCALC3

- Try entering numbers in a row or column of cells.

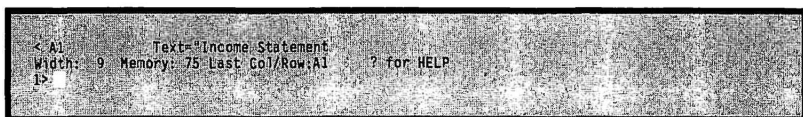
After each entry, the spreadsheet cursor automatically advances to the next cell in the direction last used.

- Now change directions. Then use the *GoTo* command (=) to start at a new location. Note that the cursor movement remains in the direction set before you used the command.
- Continue entering data in different cells, using the arrow keys to change direction. Take a few minutes to practice until you are comfortable with it.

The Prompt Line

The second line at the bottom of the screen has two formats:

- When you are in the *data-entry* mode, this line gives you secondary status information like the following:



< A1 Text: "Income Statement"
Width: 9 Memory: 75 Last Col/Row: A1 ? for HELP
IS>

- When you are in *command-entry* mode this line becomes a prompt line. The prompt message lists your options at any given moment so you don't have to remember a long list of commands.

For a sample of how this works, try the following:

- Press (/). The command prompt appears:



- Press ? to display the AnswerScreen for this prompt. It helps you interpret the various available commands.

Anytime you need additional information, you can use the AnswerKey (?) or [Apple 1].

- Once you have the information you need, return to the prompt line by pressing any key.
- The slash is still on the entry line, so type Z for Zap.

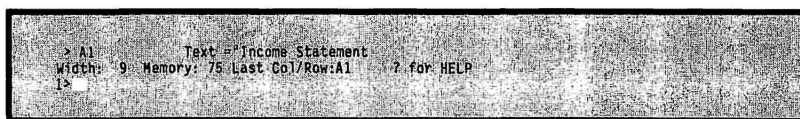
When you enter a command that could have drastic effect on your work, SuperCalc3 gives you a chance to retreat. In this case, if you complete the Zap command, changes you have made since the last Save command will be gone, permanently. The program reminds you with this message:



- Enter Y to erase the spreadsheet and start over with a fresh one.

The Entry Line

The last line of the three is the entry line:



This line is where you communicate with SuperCalc3. While the spreadsheet cursor indicates your place on the spreadsheet, here the edit cursor takes over, indicating your place on the entry line. The entry line displays whatever you type. It lets you check and edit an entry before you commit it to the spreadsheet.

The entry line's function depends upon whether you are using the data entry or command entry mode.

Data Entry:

As you type, the entry line cursor moves to tell you where the next character will appear.

Watch this happen when you enter data.

- ▶ Type a few characters on the entry line without pressing the **[RETURN]**.

At the left-hand margin, the character count initially set to 1 >changes as the edit cursor moves.

- ▶ Press **[Apple 2]** or **[Ctrl Z]** to erase the entry line. **[Ctrl Z]** means hold down **[Control]** and press the Z key.

Command Entry:

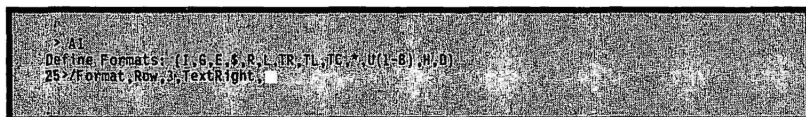
Do you remember entering a command sequence in the *10 minutes* booklet?

Try it again.

- Type this sequence *without* pressing the **[RETURN]**:

```
/F  
R  
3,  
TR
```

Now you see an example of *interpretive prompting*. You type the first letter of a command and the program displays the rest of the word on the entry line:



The notation used throughout the manual for command sequences shows your actual keystrokes in boldface.

```
/Format,Row,3,TextRight,
```

- Notice that for the command sequence the first two and last commas are supplied by SuperCalc3 but that you are required to enter the third comma.

You may have noticed in the command mode that the **[It arrow]** acts differently than when entering text or data.

- ▶ Tap **[It arrow]** several times. Each **[It arrow]** or **Delete** returns you to the previously entered keystroke deleting the word until you finally *back out* of the entire sequence.

This method is an alternative to the **[Apple 2]** or **[Ctrl Z]** command. Either method may be used to delete the command line.

If you want to take a break before going on to Lesson 2, use the *Quit* command:

- ▶ Enter **/Quit**. When the verification prompt appears, reply **Yes** to exit to the system.

What have you learned in this lesson?

You have reviewed cursor movement techniques using the arrow keys and *GoTo* (=) commands. You've also learned how to:

- Use the *GoTo* (=) command to reposition the spreadsheet.
- Use the arrow keys to *scroll* the display window.
- Set the direction in which the spreadsheet cursor moves.
- Read the status, prompt, and entry lines.
- *Back out* of an entry in a command sequence by using the **[It arrow]**.
- Cancel an operation by using **[Apple 2]** or **[Ctrl Z]**.

Lesson 2

Entering and Editing Data

Now that you have reviewed the control and display characteristics of SuperCalc3, let's take a closer look at how to enter and edit data.

In this lesson you'll learn more about how to make entries for each of the following types of data:

- Text
 - Repeating text
 - Numbers and formulas
- First, load the file you created and saved in the *10 minutes* book. We assume the data disk containing TEN.CAL is on a disk named /DATA. If not, substitute the correct disk name (also called volume name) in the following entry.
- Enter **/Load,/DATA/TEN,All**

Remember, you only type the boldface characters. You must supply the comma after TEN to signal the end of the filename. However, notice that when you enter **All** the program recognizes the completion of a command sequence and automatically supplies the **[RETURN]** for you.

5

CHAPTER

LEARNING TO USE SUPERCALC3

Make sure the TEN file matches sample Screen 5-4.

	Q1	Q2	Q3	Q4	Year
Sales	25000	20000	35000	25000	105000
Costs	15000	12000	21000	15000	63000
Profit	10000	8000	14000	10000	42000

Screen 5-4: TEN Spreadsheet

In case your TEN.CAL file is not available and you need to rebuild it, here are the formulas used for the spreadsheet in Screen 5-4. Each entry is described in the *10 minutes* booklet. Most of the formulas in rows 6 and 8 were entered with the *Replicate* command, which you will practice again in Lesson 3. The formulas can also be entered individually into each cell, but that's doing it the slow way.

	Q1	Q2	Q3	Q4	Year
Sales	25000	20000	35000	25000	SUM(B5:E5)
Costs	60%*B5	60%*C5	60%*D5	60%*E5	60%*F5
Profit	B5-B6	C5-C6	D5-D6	E5-E6	F5-F6

Screen 5-5: TEN Formulas

The program recognizes three kinds of data entries: repeating text, text, and formulas.

An entry preceded with ' (a single quote) signals *repeating text*. You saw an example in *10 minutes* when your entry '- produced a line across your spreadsheet.

Initially when you enter SuperCalc3 you are operating in the *text entry mode* — use of " (a double quote) before *text* entries is optional. In text entry mode, when SuperCalc3 recognizes your entry as text, it automatically adds the " for you. Mathematically, text entries have a *value of zero*. When an entry you want as text could be interpreted as a formula, you must specify the leading ". For example, in the TEN file, Q1, Q2, Q3, and Q4 could have been interpreted as cell reference formulas so you had to enter the leading ". However, you were not required to enter " before the titles in column A.

Entering Text

Let's proceed with text entry.

- At C1 enter your company name, followed by **[RETURN]**.

If your company name is longer than 12 characters the name spills into D1.

A text or repeating text entry spills into the cell(s) to the right under two conditions:

1. The cell(s) to the right must be empty.

2. The display format for the original cell entered must be TextLeft. This left text alignment is the default display format the program uses when you first load a spreadsheet. If you change the format to TextRight — as you did for row 3 in *10 minutes* — the text won't spill over.

Try a repeating text entry by adding a "total" line:

- At B7 enter '-' [RETURN].
- Cut off the line with a null entry in G7. Enter (') or (").

Your display moves over like the sample Screen 5-6.

The screenshot shows a spreadsheet window titled 'XYZ CORPORATION'. The spreadsheet has columns labeled '02', '03', '04', and 'Year'. The rows are numbered 1 through 9 on the left. The data is as follows:

	02	03	04	Year
1	20000	35000	25000	105000
2	12000	21000	15000	63000
3				
4	8000	14000	10000	42000
5				
6				
7				
8				
9				

Screen 5-6: Stop Repeating Text

- Press [Apple H] to redisplay your spreadsheet.

In-line Editing

You have seen how to use the [lt arrow] key to backspace and the [up arrow] key to open a space for an insertion. Likewise, you can delete letters or spaces by tapping [dn arrow].

Now enter some additional titles to column A.

To allow more space, first increase the width of columns A to 15.

- Enter **/Format,Column,A,15 [RETURN]**
- Set the automatic advance to down using **[dn arrow]**. Go to A11 and start adding the new titles according to sample Screen 5-7. Be sloppy with your typing. Make a few mistakes. Then practice using the arrow keys to make corrections, inserting and deleting characters.

XYZ CORPORATION					
	Q1	Q2	Q3	Q4	Year
Sales	25000	20000	35000	25000	105000
Costs	15000	12000	21000	15000	63000
Profit	10000	8000	14000	10000	42000
EXPENSES					
Gen & Admin Exp					
Consultant Fees					
Total Expenses					
Net Before Tax					
Income Tax					
% of Total					

Screen 5-7: Additional Text Entries

Using The Edit Command

You have seen how to edit a data entry *before* actually sending it to a current cell, but how do you edit an entry *after* you have already sent it to a cell? You can always enter the data again in its entirety, and the new entry will replace the old one. But there is another way, the *Edit* command.

Suppose you decide to change Gen & Admin Exp to General & Admin:

- ▶ GoTo A12.

Note:

This is always the first step — you must move the cursor to the cell that you want to hold the edited content.

- ▶ Enter **/Edit**,

The prompt line now says, *From? Enter cell*. It is asking where to find the material to be edited.

- ▶ When you press **[RETURN]**, the program brings the current cell's content to the entry line.
- ▶ Make your changes, using the arrow keys. Move back **[lt arrow]** to the space before the "&" and insert **[up arrow]** four spaces and type **eral**. Now space over **[rt arrow]** to the *Exp* and delete **[dn arrow]** it. When your change is complete, press **[RETURN]**. Your modified entry replaces the old one in A12.

At times you may want to edit a cell's content and enter the edited version into another cell while leaving the original cell unchanged. Try this:

- ▶ Move the current cell to A19 (the destination cell). Enter **/Edit**,
- ▶ In response to the prompt, *From?*, enter **A17** (the source cell), and press **[RETURN]**. The contents of A17 are copied to the entry line.
- ▶ Edit *Income Tax* to read *Net Income*. Backspace to *Tax* and delete it. Backspace to the **I**, insert four spaces and type *Net*.
- ▶ Press **[RETURN]** and watch the edited version of A17 jump into A19 as in sample Screen 5-8. Note that the source material remains unchanged in A17.

	A	B	C	D	E	F	G	H	I
	1	2	3	4	5	6	7	8	9
1	Income Statement	XYZ CORPORATION							
2									
3									
4		Q1	Q2	Q3	Q4	=	Year		
5	Total Expenses								
6	Net Before Tax								
7	Income Tax								
8									
9	Net Income								
10	% of Total								

Screen 5-8: Edit Command

Isn't it easier to type over a cell's content than to use *Edit*? In these examples, probably. But at other times, when you have a minor change to a long or complicated entry, the *Edit* command will come in handy.

Blanking a Cell

What if you want to completely erase the content of a cell? You could edit it and delete its content, but there's a faster way. With the *Blank* command you can *blank out*, or erase, data that you have already entered.

- ▶ GoTo B18 and enter any text entry or number.
- ▶ Enter **/Blank**,

The prompt line changes to *Enter range, or *graph-range*.

We'll look at how to specify an entire range or a *graph-range later. For now let's concentrate on *blanking* out a single cell. There are three ways to do this:

- ▶ Type **B18** and press **[RETURN]**.
- ▶ OR: Move the cursor to the cell you wish to blank (in this case B18), enter **/B**, and with no cell reference, press **[RETURN]**.
- ▶ OR: Enter **/Blank**, press **[Esc]**, move the cursor to the cell and press **[RETURN]**.

All three methods give the same result. The content of B18 is *blanked*, that is erased. Use whichever method is most convenient for you.

Entering Formulas

Formulas can be simple or complex. Many times you will just enter a number which SuperCalc3 accepts as a formula. The complexity of a formula depends on your purpose. The program assists by checking each entry formula for proper mathematical form.

Displaying Formulas with the Global Command

Using the *10 minutes* book you entered several formulas. You saw the program display the resulting values on the spreadsheet, yet you could view the formula in each cell at the status line only. You had to move the spreadsheet cursor to view each formula one at a time.

When you're working with formulas, you may want to see them displayed all at one time. The *Global* command lets you make overall or *global* changes in the way you view your entire spreadsheet, rather than specific or local changes.

- Enter **/Global**,

The prompt line now reads:

┌ On/off toggles ┐

Interface, Keep, Graphics, Form, " , Next, Border, Tab, Prot, Row/Col, Man/Auto?

The current Global settings are highlighted on your screen. This lesson will use some of the on/off toggles. When an option is *on* it is highlighted.

- The concern now is with formulas, so enter **F**ormula and see your formulas displayed.

You can see examples of several different types of formulas.

SUM and % are built-in functions. The program provides many other built-in functions, including SQRT (square root), AVERAGE (arithmetic mean), NPV (net present value), IRR (Internal Rate of Return), IF conditionals, trigonometric functions, and many more. See Chapter 4, *Formulas and Functions*, for a complete list.

5

CHAPTER

LEARNING TO USE SUPERCALC3

- Now enter the rest of the formulas in sample Screen 5-9.

Income Statement					
XYZ CORPORATION					
	Q1	Q2	Q3	Q4	Year
Sales	25000	20000	35000	25000	SUM(B5:E5)
Costs	60% \times B5	60% \times C5	60% \times D5	60% \times E5	60% \times F5
Profit	B5-B6	C5-C6	D5-D6	E5-E6	F5-F6
EXPENSES					
General & Admin	15% \times B5				
Consultant Fees	12% \times B5				
Total Expenses	SUM(B12:B15)				
Net Before Tax	B8-B15				
Income Tax	20% \times B16				
Net Income	B16-B17				
% of Total	B19/F19*100				

Screen 5-9: Formula Display Mode

In the formula at B20, the / is the division sign. The * means multiply and is equivalent to the \times sign in algebraic notation.

While you are in *text entry mode* if you enter a formula incorrectly, the program interprets it as text. A leading " appears in the cell contents. If you make it through the formulas without making a mistake, go to any empty cell and type one of the formulas incorrectly. To correct a formula, you must be sure to remove the leading " using this technique:

- Enter /Edit [RETURN].
- Press the [Tab] key or backspace to the " and tap [dn arrow].

Since this procedure can become tedious while you're entering formulas, SuperCalc3 gives you an alternative:

- ▶ Enter **/Global,"**

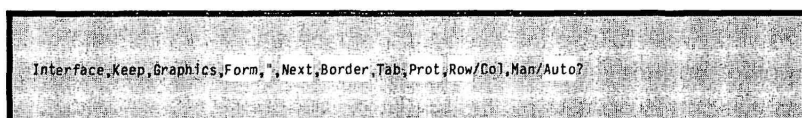
This puts you in *formula entry mode*. Now the leading **"** is required for text entries, but look at what it buys you for formula entries:

- ▶ Go to another empty cell and enter another formula incorrectly.

Note this time that the message FORMULA ERROR appears instead of TEXT and you have no **"** to remove from the formula.

When you are finished entering the formulas, return to the Global prompt.

- ▶ **/Global**, and the prompt line appears:



Note that both the Formula and **"** options are on. Whenever you are working with formulas you may want to use these two options.

Border On/Off

The *Global* command has another toggle option — *Border*.

A single command turns off the top and left border as in Screen 5-10.

- ▶ Enter: **B**order

Income Statement					
XYZ CORPORATION					
	Q1	Q2	Q3	Q4	Year
Sales	25000	20000	35000	25000	SUM(B5:E5)
Costs	60%*B5	60%*C5	60%*D5	60%*E5	60%*F5
Profit	B5-B6	C5-C6	D5-D6	E5-E6	F5-F6
EXPENSES					
General & Admin	15%*B5				
Consultant Fees	12%*B5				
Total Expenses	SUM(B12:B13)				
Net Before Tax	B8-B15				
Income Tax	20%*B16				
Net Income	B16-B17				
% of Total	B19/F19*100				

Screen 5-10: Border Off

- You may wish to try printing your spreadsheet now if you have a printer. Be sure your printer is *turned on* and ready to go. Otherwise, you'll be locked out of your spreadsheet until the printer is turned on. Enter:

/Output,Display,All,Printer

Note that your spreadsheet printing matches the Border off condition on your screen. If, however, you want to turn the border on or off for printing only you can toggle the Border OFF at the *Output,...Setup Printer* menu.

Single Spacing

Your printed report should be single-spaced. If the report is double-spaced, check these two settings at the Output...Setup Printer menu (enter **/Output, Display, All, Setup** to bring up the menu):

D = toggle Double Space Report: Someone might have changed this setting to ON for double-spacing. If it's ON, press **D** to turn it OFF, then try printing your report again.

E = toggle End-Line-Feed: If Double Space Report is OFF, and your printer still double spaces, press **E** to turn End-Line-Feed OFF. Re-print the report. It should be single-spaced.

To retain the settings at the Setup Printer menu as program defaults, use the *Global Keep* command.

- Repeat the **/Global, Border** command to turn the screen display border back on.

Automatic Advance On/Off

Now one last *Global* toggle command before you leave this lesson. You've seen how the spreadsheet cursor automatically advances when you press **[RETURN]**. At times you'll want the cursor to stay put after an entry. To turn the automatic cursor advance off enter:

/Global, Next

The cursor does not move when you press **[RETURN]**. Note also that the first character of the status line which indicates the cursor direction disappears.

5

C H A P T E R

LEARNING TO USE SUPERCALC3

You can turn the automatic advance back on with the same command, but leave it as is for now.

Saving Your File

You have completed Lesson 2 and should save your spreadsheet on a disk file before going on. Lessons 3 through 6 will build on this same spreadsheet — at the beginning of most lessons you will be asked to load the file from the previous lesson. To keep the progression in separate files that you can refer to later, you should give each file its own name. Save these spreadsheets on the disk named /DATA. Make sure the /DATA disk is in one of your disk drives. If you have a hard disk, save the file on your data sub-directory.

- ▶ Type **/Save**, to tell the system you want to save your file. This prompt appears:

Enter filename, or <RETURN> for Directory

- ▶ Type **/DATA/LESSON2**, as the name of the disk and file, then **All**.

If a file already exists on the disk by that name, you can use the Backup option.

Note:

Entering only a filename assigns the file to the current *data* disk. You can also assign the file to another disk, or create a new sub-directory. See the *Directory Options* section in Chapter 3 for information about changing and making sub-directories, or learn more about *Directory Options* in Lesson 3.

If you want to quit now:

- ▶ Type **/Quit** then **Yes** to exit the program.

In this lesson you have learned how to:

- Enter data either as text with an optional " or repeating text with a required '.
- Do in-line editing, using [**dn arrow**] for delete and [**up arrow**] for insert.
- *Edit* content already sent to a cell.
- *Edit* the content of one cell, and place it in another cell.
- Toggle between formula and value display using the *Global,Formula* command.
- Enter formulas with simple numbers and with built-in functions in text and formula modes, using the *Global,"* toggle command.
- Turn off the screen display border or turn it back on using *Global,Border*.
- Turn off the automatic cursor advance using *Global,Next*.
- Print a spreadsheet with the */Output* command.

Lesson 3

Copying and Replicating Data

To complete a typical financial spreadsheet, many more formulas must be entered. You could enter all the formulas one by one into the cells, but that would be tedious. This lesson will show you how to cut down on time and errors, using the *Copy* and *Replicate* commands. Once you have the formulas the way you want them, the *Protect* command keeps them from being *edited* or *blanked*. For each of these commands you'll practice specifying ranges of rows, columns, and finally a block of cells.

The File Directory

Continue using the spreadsheet you began to develop in Lesson 2 and retrieve the file you saved at the end of that lesson.

- Use the *Load* command to do this. Be sure the disk containing the LESSON2.CAL file is in one of your disk drives on the /DATA disk. Enter:

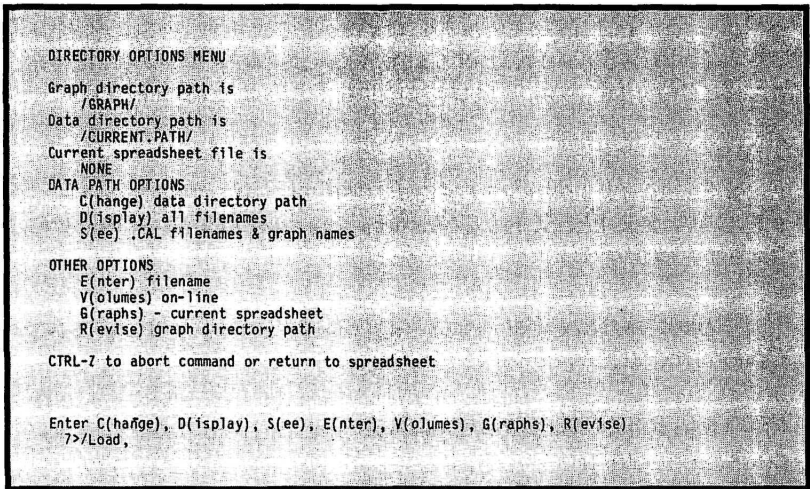
/Load,

This prompt appears:

Enter filename, or < RETURN > for Directory

- Enter [**RETURN**].

When you enter [**RETURN**] you see the Directory Options menu (Screen 5-11).

**Screen 5-11: Directory Options**

The Data directory path is variable. It might be /PROGRAM/ (the volume name for your program disk), or the volume name and subdirectories, if any, last used during this work session.

- ▶ Select **C** to change the current data directory path.
- ▶ Enter **/DATA** as the new data disk volume name.

/DATA/ becomes the *current* directory path and remains so until you change it again or *Quit* the program. You no longer need to specify /DATA/ when you *Load* or *Save* a file during this work session, although we will continue to show it to remind you to put the /DATA disk in one of your disk drives.

- ▶ Enter **See** to get a directory catalog display of all spreadsheet files on the /DATA disk. LESSON2.CAL should be among them. If not, you have the wrong disk.
- ▶ Tap [**Spacebar**] to either display more files or return to the Directory Options menu.
- ▶ Enter **E** to exit the Directory Options menu and return to the Load command entry line.
- ▶ Enter: **/DATA/LESSON2,All**

The Copy Command

The *Copy* command is easy to use. You can copy a single cell, a partial row or partial column, or a block of cells. Or, you can copy a graph description to another graph. (For complete information see the /Copy section of Chapter 3.)

For now, you can use the *Copy* command to copy the content of a single cell, B12 to C12:

- ▶ Enter **/Copy,**

The prompt line responds with:

From? Enter range or *graph-number

- In response, enter **B12**,

The prompt changes to ask:

To? (Enter Cell); then < RETURN > or < , > for Options

- Enter **C12** and press [**RETURN**] for automatic adjustment.

The Options are discussed below with the *Replicate* command.

- Compare the contents of C12 with B12 and note that the formula is adjusted automatically to reflect the new cell location.
- To get the hang of it, use the *Copy* command to copy the contents of cell C12 to D12, D12 to E12, and E12 to F12. Your display should look like Screen 5-12.

XYZ CORPORATION					
	Q1	Q2	Q3	Q4	Year
Sales	25000	20000	35000	25000	SUM(B5:E5)
Costs	60% B5	60% C5	60% D5	60% E5	60% F5
Profit	B5-B6	C5-C6	D5-D6	E5-E6	F5-F6
EXPENSES					
General & Admin.	15% B5	15% C5	15% D5	15% E5	15% F5
Consultant Fees	12% B5				
Total Expenses	SUM(B12:B13)				
Net Before Tax	B8-B15				
Income Tax	20% B16				
Net Income	B16-B17				
% of Total	B19/F19*100				

Screen 5-12: Copying a Cell

Now just to see how copying a partial row of cells works, copy some of the formulas in row 12 to row 13:

► Enter **/Copy,C12:F12,C13 [RETURN]**

Note that you only need to enter the first cell (or upper-left corner) of a destination range.

However, this is not the formula you need in row 13, so practice blanking out a partial row with the *Blank* command.

► Enter **/Blank,**

► For the range to blank, specify **C13:F13 [RETURN]**

Now let's practice the *Copy* command one more time using a different method to enter the range:

ESCape to Point

You've seen that in command mode you can often press **[RETURN]** to enter the current cell at the entry line. This works fine as long as the cursor is positioned at the cell you want. Since the cursor keys are used for in-line editing during command entry, it seems you can't use them to "point" the spreadsheet cursor to cells you want to appear on the entry line. But you're not locked in after all, thanks to the **[Esc]** key.

The **[Esc]** key lets you temporarily free the arrow keys to move the current cell during either command or data entry. This becomes particularly useful when specifying ranges, because you can move the cursor to the cell(s) you want to specify.

Try it, repeating the same exercise as before:

- ▶ Enter **/Copy**.
- ▶ Now press **[Esc]**.

Note that the current cell appears on the command entry line.

- ▶ Now use an arrow key to move the current cell to C12 and type a period (.).

Typing a (.) or a (:) locks in the current cell as the first cell, or upper left corner cell, of a range or block. The (.) or (:) is called a range delimiter.

- ▶ Use **[rt arrow]** to move to F12.

The cursor appears to expand, indicating the range to be copied. When you get to F12 the highlighting covers four cells.

Note that ESC to POINT is turned off if you cancel the *Copy* command, and when you press a comma to enter the *From* range. You can also toggle off the Point function with the **[Esc]** key.

Income Statement						F
XYZ CORPORATION						
	Q1	Q2	Q3	Q4	Year	
Sales	25000	20000	35000	25000	SUM(B5:E5)	
Costs	60385	602C5	602D5	602E5	602F5	
Profit	B5-B6	C5-C6	D5-D6	E5-E6	F5-F6	
EXPENSES						
12	General & Admin 15385	152C5	152D5	152E5	152F5	
13	Consultant Fees 12385					

Screen 5-13: Showing Highlighted Cells

- At F12 enter , (a comma).

ESC to POINT is turned off, so press [**Esc**] to turn it on again.

- Move the current cell to C13, the upper left corner of your destination, and press [**RETURN**].

Now *blank* the range using the POINT function:

- Enter **/Blank**.
- Press [**Esc**] and move the current cell to C13. Enter . (a period).
- Move the current cell to F13 and press [**RETURN**].

The POINT function can be very useful. It may take more keystrokes, but since you can select cells visually rather than stopping to think about the cell coordinates, it's often faster.

You may use [**Esc**] to POINT whenever you need to specify a range of cells with commands such as *Blank*, *Copy*, *Replicate*, and *View*. It does not work with commands such as *Move*, *Insert*, and *Delete* since they use entire columns and rows only.

The Replicate Command

The *Copy* command makes a *one-to-one* copy of its source material into a destination of the same size. If you want to repeat a series of values and formulas many times, you can use another very powerful command, *Replicate*.

Replicate makes a *one-to-many* copy of a cell, a partial row, or a partial column, and distributes these copies over a destination range that is larger than the source range.

First, *Replicate* a single cell into a partial row:

- ▶ Enter **/Replicate**.
- ▶ For *From*, enter **B13**,
- ▶ For *To?*, enter the range C13 through F13, by typing **C13.F13** and **[RETURN]**. Or use **[Esc]** then move to C13, enter **(.)** then move to F13 and press **[RETURN]**.

Now try to *Replicate* a partial column into partial rows:

- ▶ Enter **/Replicate,B15.B19,C15.F15 [RETURN]**.

Note that you only need to enter the cells in the top row of your destination.

- ▶ Your display should look like sample Screen 5-14.

Income Statement						XYZ CORPORATION				
	Q1	Q2	Q3	Q4	Year					
Sales	25000	20000	35000	25000	SUM(B5:E5)					
Costs	60%B5	60%C5	60%D5	60%E5	60%F5					
Profit	B5-B6	C5-C6	D5-D6	E5-E6	F5-F6					
EXPENSES										
General & Admin	15%B5	15%C5	15%D5	15%E5	15%F5					
Consultant Fees	12%B5	12%C5	12%D5	12%E5	12%F5					
Total Expenses	SUM(B12:B13)	SUM(C12:C13)	SUM(D12:D13)	SUM(E12:E13)	SUM(F12:F13)					
Net Before Tax	B8-B15	C8-C15	D8-D15	E8-E15	F8-F15					
Income Tax	20%B16	20%C16	20%D16	20%E16	20%F16					
Net Income	B16-B17	C16-C17	D16-D17	E16-E17	F16-F17					
% of Total	B19/F19*100									
Form= SUM(F12:F13)										
Width: 12 Memory: 73 Last Col/Row: 620 ? for HELP										

Screen 5-16: Replicating a Cell Command

Range Delimiter

So far you have used a period and a colon as a range delimiter (C13.F13 or C13:F13). In the remainder of the lessons we use a colon delimiter because users of prior versions of SuperCalc are more familiar with that entry. You can use a period or a colon. Because the (:) is a shifted character on most keyboards, you will find that the (.) delimiter is more convenient to use.

Formula Adjustment

So far in these Copy and Replicate exercises you have accepted the automatic adjustment. But now try something different.

- ▶ Enter **/Replicate** then enter **B20** as the From or source cell.

This time hold F19, the year's Net Income, constant. When this prompt appears:

To? (Enter Range); then <RETURN> or < , > for Options

- ▶ Enter **C20:E20** then (,) for the options.

This prompt appears:

N(o Adjust), A(sk for Adjust), V(alues), +, -, *, /

Enter **A**sk for *Adjust*. This option allows you to specify adjustment or non-adjustment for each cell address that the formula contains.

The prompt changes to:

Source cell B20. Adjust B19 (Y or N)?

and the first cell address, B19, is highlighted on the entry line.

- Respond with **Y**.

This time the reference to F19 is highlighted on the entry line.

- Respond with **N** for no adjustment.

Notice that the first variable of your formula in row 20 is adjusted while the F19 remains unchanged.

Let's see how the spreadsheet looks now in value display mode:

- Type **/Global,Formula**.

Your display should look like sample Screen 5-15.

5

CHAPTER

LEARNING TO USE SUPERCALC3

Income Statement					
	Q1	Q2	Q3	Q4	Year
Sales	25000	20000	35000	25000	105000
Costs	15000	12000	21000	15000	63000
Profit	10000	8000	14000	10000	42000
EXPENSES					
General & Admin	3750	3000	5250	3750	15750
Consultant Fees	3000	2400	4200	3000	12600
Total Expenses	6750	5400	9450	6750	28350
Net Before Tax	3250	2600	4550	3250	13650
Income Tax	650	520	910	650	2730
Net Income	2600	2080	3640	2600	10920
% of Total	23.80952381	19.04761905	33.33333333	23.80952381	

20 > B20 Form= B19/F19*100
 Width: 12 Memory: 74 Last Col/Row: G20 ? for HELP
 1>

Screen 5-15: Formula Adjustment

To make the spreadsheet look more like a financial statement try using the *Money (\$)* format to display all figures with two decimal places.

- Enter **/Format,Global,\$,[RETURN]**.

Income Statement XYZ CORPORATION					
	Q1	Q2	Q3	Q4	Year
Sales	25000.00	20000.00	35000.00	25000.00	105000.00
Costs	15000.00	12000.00	21000.00	15000.00	63000.00
Profit	10000.00	8000.00	14000.00	10000.00	42000.00
EXPENSES					
General & Admin	3750.00	3000.00	6250.00	3750.00	15750.00
Consultant Fees	3000.00	2400.00	4200.00	3000.00	12600.00
Total Expenses	6750.00	5400.00	9450.00	6750.00	28350.00
Net Before Tax	3250.00	2600.00	4550.00	3250.00	13650.00
Income Tax	650.00	520.00	910.00	650.00	2730.00
Net Income	2600.00	2080.00	3640.00	2600.00	10920.00
% of Total	23.81	19.05	33.33	23.81	

> B20 Form= B19/F19*100
Width: 12 Memory: 74 Last Col/Row: B20 ? for HELP

Screen 5-16: Money (\$) Format

Look better? You'll learn more about display formatting in Lesson 5.

Since you're through using the *Replicate* command for now, turn the automatic cursor advance back on:

► Enter **/Global,Next**.

Did the first character in the status line reappear? That tells you the cursor advance is back on and set in the direction of your most recent cursor movement.

Now save the spreadsheet before trying something else:

► Enter **/Save,/DATA/LESSON3,All**.

The Protect Command

Once you get all your formulas the way you want them, it's a good idea to *Protect* them against unwanted entries or blanking.

First, protect a single cell.

- ▶ Enter **/Protect**, then **F5**. Press **[RETURN]**.
- ▶ Move the cursor to F5 and note that a "P" now appears next to the *Form* display on the status line:



This indicator tells you that the current cell is *protected*.

Just as in the *Copy* and *Replicate* commands, you can specify a range for protection. You could specify by columns, or rows, but you actually have a block of cells that needs protection —rows 8 through 20, and columns B through F.

- ▶ Type **/Protect,B8:F20 [RETURN]**.

What is the significance of what you have done?

Remember that **/Blank** can *blank* out an entire block of cells.

- ▶ Enter **/Blank,B8:F20 [RETURN]**.

Nothing is blanked and the message "Protected Entry at B8" appears as a reminder. Rows 1 through 7, and Column A with the titles remain because they lie outside the range of the block-definition we used with the *Blank* command. The rest remain because they were protected.

Now try some modeling in an unprotected cell:

- Go to B6 and edit the formula to read **45%B5**. Then *Replicate* it across the row.

Income Statement		Q1	Q2	Q3	Q4	Year
Sales		25000.00	20000.00	35000.00	25000.00	165000.00
Costs		11250.00	9000.00	15750.00	11250.00	47250.00
Profit		13750.00	11000.00	19250.00	13750.00	57750.00
EXPENSES						
General & Admin		3750.00	3000.00	6250.00	3750.00	15750.00
Consultant Fees		4000.00	2400.00	4200.00	3000.00	13600.00
Total Expenses		6750.00	5400.00	9450.00	6750.00	28350.00
Net Before Tax		7000.00	5600.00	9800.00	7000.00	29400.00
Income Tax		1100.00	820.00	1460.00	1000.00	3880.00
Net Income		5900.00	4780.00	8340.00	6000.00	25520.00
% of Total		23.24	19.05	33.33	23.81	

> F5 P Form= SUM(B5:E5)
Width: 12 Memory: 74 Last Col/Row: G20 ? for HELP
1>

Screen 5-17: Protected Cells

- Change the Sales figure in B5, and watch the rest of the values in that column change.
- Now try the same thing with B8 or any other cell in your protected block. Because these cells have been protected, their contents cannot be changed or blanked out.

This feature provides you with a large measure of safety when you are working with information that has taken you time to develop, and which you cannot afford to accidentally lose. Note, however, that empty cells within a protected range are not protected, like F20 in our sample. If you later enter data into these empty cells, you must *Protect* them then.

- ▶ Test F20 by entering data in it, then blanking it out.

The Unprotect Command

The *Unprotect* command cancels the protection. You can use it when you want to remove protection from a cell, partial row, partial column or block.

- ▶ Type **/Unprotect,F5 [RETURN]**.

Now save the file again:

- ▶ First change your Sales figures in row 5 back to the ones in sample Screen 6-17.
- ▶ Type **/Save,/DATA/LESSON 3,ALL**.

Since you have already saved the file by this name, this message appears:

File already exists: C(hange name), B(ackup) or O(verwrite)?

You could enter "C" to change the name, then type in a new name.

Or you could enter "O" for overwrite. This would replace the old version of the file with the current one.

But because you have done a lot of work to your current spreadsheet, let's talk about the *Backup* option for a moment.

Keeping Backup Copies of Your File

When you *Load* a file, you are actually sending a temporary working copy of it to the computer memory—the original file on disk remains unchanged while you are working with the spreadsheet. After you view or edit the working copy you may *Zap* it, which erases the copy from the memory. Or you may *Save* it.

The *Backup* option saves your current spreadsheet as LESSON3.CAL and renames the one you saved earlier to LESSON3.BAK. Then you have two copies—the earlier version one (LESSON3.BAK) and the current version two (LESSON3.CAL).

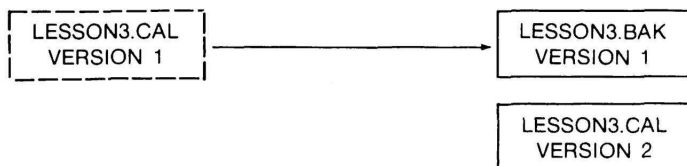


Illustration 5-2: First Backup

The next time you use the Backup option, current version two of the file becomes the backup copy and version one gets deleted.

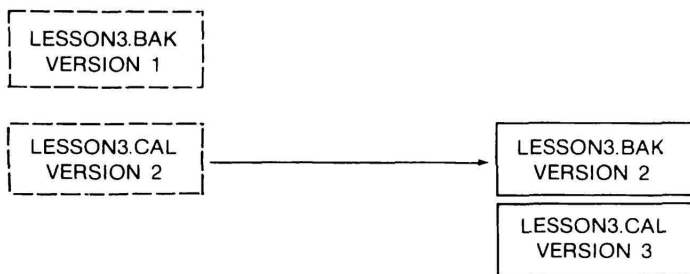


Illustration 5-3: Second Backup

When you create a new backup copy every time you save a file, you always have your most recent work to fall back on. Then if you change your mind about a file you have just edited and saved, you can load the backup copy. Simply add the .BAK extension to the filename when you request it with the *Load* command.

If you want to set aside a third version of a file and maintain it on the disk, you can use the *Change* name option, and give the file a different name.

This time use the Backup option:

► Type **B**ackup,**A**ll

If you want to take a break before going on to Lesson 4:

► Type **/Q**uit,**Y**es

What have you learned in this lesson?

- How to use the *Copy* command to make a *one-to-one* copy of a cell or range of cells.
- How to use the *Replicate* command to make a *one-to-many* copy of a cell, a partial row, or a partial column and to distribute the copies over a range.
- That the program will adjust cell references in formulas automatically when data is moved to new locations — or let you leave part or all of a formula unchanged.

- That in an arithmetic expression, * means multiply and / means divide.
- How to *Protect* and *Unprotect* cells, and what protection does for a cell.
- How to specify a range of cells, by row, column, or block, in the *Copy*, *Replicate*, *Blank*, *Protect*, and *Unprotect* commands.

Lesson 4

Move, Insert, Delete

By now you have learned to use several important / commands. You can *Save*, *Load*, and *Zap* your spreadsheet. This lesson introduces commands and techniques that greatly simplify the development of a complex display. You'll learn how to *Move*, *Insert*, and *Delete* rows and columns.

- If you are not continuing directly from Lesson 3, *Load* the file /DATA/LESSON3.

Remember you can use (?) if you want a refresher on how to use *Load*.

Income Statement XYZ CORPORATION					
	01	02	03	04	Year
Sales	25000.00	20000.00	35000.00	25000.00	105000.00
Costs	11250.00	9000.00	15750.00	11250.00	47250.00
Profit	13750.00	11000.00	19250.00	13750.00	57750.00
EXPENSES					
General & Admin	3750.00	3000.00	5250.00	3750.00	15750.00
Consultant Fees	3000.00	2400.00	4200.00	3000.00	12600.00
Total Expenses	6750.00	5400.00	9450.00	6750.00	28350.00
Net Before Tax	7000.00	5600.00	9800.00	7000.00	29400.00
Income Tax	1400.00	1120.00	1960.00	1400.00	5880.00
Net Income	5600.00	4480.00	7840.00	5600.00	23520.00
% of Total	23.81	19.05	33.33	23.81	

Form=SUM(B5:E5)
 Width: 12- Memory: 74 Last C61/Row:G20 ? For HELP
 12

Screen 5-18: LESSON 3 Spreadsheet

- ▶ Make sure your display matches Screen 5-18, including row 6 which uses the Costs percentage of 45%.

The Insert and Delete Commands

Two complementary commands can create or delete columns and rows.

Reposition the display window with the *Go To* command:

- ▶ Move the cursor to C1.
- ▶ Enter = then **[RETURN]**.
- ▶ Use **/Global,Formula** to display formulas.

Proceed with the *Insert* command. First for practice, insert a column between D and E.

- ▶ Enter **/Insert**,

The prompt line reads:

R(ow) or C(olumn)?

- ▶ Enter **Column**,

The next prompt reads:

Enter Column Range

- ▶ Respond by entering **E [RETURN]**.

5

CHAPTER

LEARNING TO USE SUPERCALC3

A new column appears, and the data in columns E and F are shifted to the right as in Screen 5-19. Note the formulas in columns F and G are automatically adjusted for their new location.

► *Insert* a column between F and G.

Enter **/Insert,Column,G [RETURN]**.

What happened this time? The new column appears, but the formula in H5 is not adjusted because you have inserted a column outside the specified range of B5:F5.

C			
XYZ CORPORATION			
Q2	Q3	Q4	Year
20000	35000	25000	SUM(B5:F5)
45%G5	45%G5	45%F5	45%G5
C5-G6	D5-D6	F5-F6	H5-H6
15%G5	15%D5	15%F5	15%G5
12%G5	12%D5	12%F5	12%G5
SUM(C12:C13)	SUM(D12:D13)	SUM(F12:F13)	SUM(H12:H13)
G8-C15	D8-D15	F8-F15	H8-H15
20%G16	20%D16	20%F16	20%G16
C16-C17	D16-D17	F16-F17	H16-H17
C19/H19*100	D19/H19*100	F19/H19*100	
Text=XYZ CORPORATION			
Width: 12 Memory: 73 Last Col/Row:H20 ? for HELP			

Screen 5-19: Insert a Column

Now *Delete* the two columns:

- ▶ Enter **/Delete,Column,G [RETURN]**.
- ▶ *Delete* column E in the same way.

The formulas are adjusted back to their original state.

But what happens to a value that depends on one that you delete? You'll *Zap* this screen in a minute, so feel free to experiment:
Before you can *Delete*, you must *Unprotect* the cells:

- ▶ Enter **/Unprotect,All [RETURN]**.
- ▶ Now *Edit* E12 to read 15%E5 + **C12**.
- ▶ *Delete* column C.

Notice that the formulas are adjusted when you delete a column containing data *from the middle of* a range. The SUM formula in E5 now refers to ranges from columns B through D. But D12 displays this message:

15%D5 + ERROR

to warn you that it has no value to use in the calculation.

- ▶ Notice that the formulas in cells D15 through D20 are dependent on the value in D12.
- ▶ Press **[Apple H]**.
- ▶ Change the spreadsheet to display cell values with **/Global,Formula**.

5

CHAPTER

LEARNING TO USE SUPERCALC3

Income Statement				
XYZ CORPORATION				
	Q1	Q3	Q4	Year
Sales	25000.00	35000.00	25000.00	85000.00
Costs	11250.00	15750.00	11250.00	38250.00
Profit	13750.00	19250.00	13750.00	46750.00
EXPENSES				
General & Admin	3750.00	5250.00	ERROR	12750.00
Consultant Fees	3000.00	4200.00	3000.00	10200.00
Total Expenses	6750.00	9450.00	ERROR	22950.00
Net Before Tax	7000.00	9800.00	ERROR	23800.00
Income Tax	1400.00	1960.00	ERROR	4760.00
Net Income	5600.00	7840.00	ERROR	19040.00
% of Total	29.41	41.18	ERROR	

< A1 Text: "Income Statement
Width: 12 Memory: 73 Last Col/Row: F20 ? for HELP
1>

Screen 5-20: ERROR — Cell Reference

Your display should look like Screen 5-20. When a cell contains ERROR, any reference to it will also contain an ERROR. The ERROR warnings help you avoid inadvertently leaving references to nonexistent cells that can occur after a *Delete* command.

- Solve the problem. *Edit* D12 by either removing ERROR from the formula or by replacing ERROR with a value.

The errors are replaced by the recalculated values.

Now try something more drastic:

- Look at the formula in E5. It reads:

SUM(B5:D5)

- *Delete* column D.

The screenshot shows a spreadsheet window titled 'Income Statement'. The table has columns for 01, 03, and Year. The 'Year' column contains 'ERROR' for all rows from row 5 to row 24. The status bar at the bottom indicates 'Width: 12 Memory: 73 Last Col/Row: E20 ? for HELP'.

	01	03	Year
5 Sales	25000.00	35000.00	ERROR
6 Costs	11250.00	15750.00	ERROR
7			
8 Profit	13750.00	19250.00	ERROR
9			
10 EXPENSES			
11 General & Admin	3750.00	5250.00	ERROR
12 Consultant Fees	3000.00	4200.00	ERROR
13			
14 Total Expenses	6750.00	9450.00	ERROR
15 Net Before Tax	7000.00	9800.00	ERROR
16 Income Tax	1400.00	1960.00	ERROR
17			
18 Net Income	5600.00	7840.00	ERROR
19 % of Total	ERROR	ERROR	ERROR
20			

Screen 5-21: ERROR — Deleted Range Boundary

The formula in D5 — which used to be SUM(B5:D5) — now contains an ERROR, which impacts the entire column of values as in Screen 5-21. The general rule is not to delete either of the boundaries specified in a range. A possible recovery in this case is to blank the contents of column D, reenter a formula with the new range in D5 and replicate it down the column. But first, let's look at another possibility.

Avoiding Errors

As you have seen, doing insertions and deletions at the boundaries of specified ranges creates problems. To avoid this, here's a useful suggestion:

- ▶ Insert a column at D.

If you like, you may follow the recovery procedure we mentioned for this case:

- ▶ Blank the contents of column E.
- ▶ At E5 enter this new formula: **SUM(A5:D5)**.
- ▶ *Replicate* this formula down column E to row 19 and blank out the cells containing zeros.

Before, the range boundaries contained data — now they do not. The range specifications in column E include the title column A and the blank column D. This is harmless because, mathematically, *text* has the value of zero, therefore it has no effect on the calculation. You may insert or delete columns as you wish, adding or removing entries and SuperCalc3 will adjust the formulas accordingly.

Now that you've seen how inserting and deleting works, and how to avoid errors, let's apply it to rows in your Income Statement.

- ▶ *Zap* your current spreadsheet, and reload the /DATA/LESSON3 file.

For this next experiment, put aside standard accounting conventions and suppose — for modeling purposes — that you want to break your General & Administrative Expense into three subcategories.

- ▶ Enter **/Insert, Row, 13:15 [RETURN]** to open up three rows for your new entries.
- ▶ Enter **/Global, Formula** to get formula display.
- ▶ Using the commands you have learned thus far, create the data in rows 13, 14, and 15 of sample Screen 5-22.

12	EXPENSES					
13	General & Admin	15%05	15%C5	15%D5	15%E5	15%F5
14	Rent	75%012	75%C12	75%D12	75%E12	75%F12
15	Utilities	10%012	10%C12	10%D12	10%E12	10%F12
16	Telephone	15%012	15%C12	15%D12	15%E12	15%F12
17	Consultant Fees	12%05	12%C5	12%D5	12%E5	12%F5
18	Total Expenses	SUM(B12:B16	SUM(C12:C16	SUM(D12:D16	SUM(E12:E16	SUM(F12:F16
19	Net Before Tax	B8-B18	C8-C18	D8-D18	E8-E18	F8-F18
20	Income Tax	20%019	20%C19	20%D19	20%E19	20%F19
21	Net Income	B19-B20	C19-C20	D19-D20	E19-E20	F19-F20
22	% of Total	B22/F22*100	C22/F22*100	D22/F22*100	E22/F22*100	

Screen 5-22: General & Administrative Subcategories

5

CHAPTER

LEARNING TO USE SUPERCALC3

Note that the formulas in row 18 and below are adjusted. But there's a problem. The SUM range in row 18 includes both the original General & Administrative figure and its subcategories in rows 13 through 15.

- Switch your spreadsheet to the value display, as in Screen 5-23, and take a look at the Net Income in row 22.

Not much income, is there? That's because the General & Administrative expenses are added twice into the Net Income totals. For the sake of experimentation, let's move the rows so that 13, 14, and 15 fall outside the SUM range.

The Move Command

You could use *Insert* and *Copy* to duplicate rows 16 and 17 and then use *Blank* to erase them from their former positions. Instead, try this:

- Enter **/Move**, and read the prompt:
R(ow) or C(olumn)?
- Enter **Row**, and the prompt changes to:
From? Enter row range

	B				
1 Sales	25000.00	20000.00	35000.00	25000.00	105000.00
2 Costs	11250.00	9000.00	15750.00	11250.00	47250.00
3 Profit	13750.00	11000.00	19250.00	13750.00	57750.00
4					
5 EXPENSES					
6 General & Admin	3750.00	3000.00	5250.00	3750.00	15750.00
7 Rent	2812.50	2250.00	3937.50	2812.50	11812.50
8 Utilities	375.00	300.00	525.00	375.00	1575.00
9 Telephone	562.50	450.00	787.50	562.50	2362.50
10 Consultant Fees	3000.00	2400.00	4200.00	3000.00	12600.00
11					
12 Total Expenses	10500.00	8400.00	14700.00	10500.00	44100.00
13 Net Before Tax	3250.00	2600.00	4550.00	3250.00	13650.00
14 Income Tax	650.00	520.00	910.00	650.00	2730.00
15					
16 Net Income	2600.00	2080.00	3640.00	2600.00	10920.00
17 % of Total	23.81	19.05	33.33	23.81	
18					
P Form= SUM(B12:B16)					
Width: 12. Memory: 73 Last Col/Row: 623 ? for HELP					
19					

Screen 5-23: Incorrect Row Insertion

► Enter **12:15**,

Now the prompt asks where you want the material to go:

To? Enter row number

► Enter **16 [RETURN]**.

Now the Income Statement looks more profitable, as in Screen 5-24.

The rows are moved and the gap, which you might have expected the three rows to leave behind, is filled.

5

CHAPTER

LEARNING TO USE SUPERCALC3

SuperCalc3 adjusts all the formulas to reflect their new locations. For example, the SUM range in cell B18 now reads B13:B12. The range specification is reversed from what you might expect due to the move. Note that a range specification may be one of four ways: from top left to bottom right, bottom right to top left, top right to bottom left, or bottom left to top right.

	A	B	C	D	E	F
2	Sales	25000.00	20000.00	35000.00	25000.00	105000.00
3	Costs	11250.00	9000.00	15750.00	11250.00	47250.00
4	Profit	13750.00	11000.00	19250.00	13750.00	57750.00
5						
6	EXPENSES					
7	Consultant Fees	3000.00	2400.00	4200.00	3000.00	12600.00
8	General & Admin	3750.00	3000.00	5250.00	3750.00	15750.00
9	Rent	2812.50	2250.00	3937.50	2812.50	11812.50
10	Utilities	375.00	300.00	525.00	375.00	1575.00
11	Telephone	562.50	450.00	787.50	562.50	2362.50
12						
13	Total Expenses	6750.00	5400.00	9450.00	6750.00	28350.00
14	Net Before Tax	7000.00	5600.00	9800.00	7000.00	29400.00
15	Income Tax	1400.00	1120.00	1960.00	1400.00	5880.00
16						
17	Net Income	5600.00	4480.00	7840.00	5600.00	23520.00
18	% of Total	23.81	19.05	33.33	23.81	

> B18 P:Form= SUM(B13:B12)
Width: 12 Memory: 73 Last Col/Row: 623 ? for HELP
1>

Screen 5-24: Inserted Rows Moved

The range in B18 will produce the desired results. Only the two major expense items will now be added. If you wish to insert another major expense, it should go between rows 12 and 13. For even more flexibility you could change SUM range to 11:13 or 13:11, so that you could also add expenses above row 12.

Now that the financial statement is correct, you should save it.

- Save your file as **/DATA/LESSON4,All**.

Unavailable Data

Before you *Zap* your screen, one last point. Sometimes you may be working on a complex spreadsheet with many values that are functions of other values. Because your data may be incomplete, you may mistakenly view some totals or values as significant when in fact they are not.

Here is what you can do in such cases. Suppose you wanted to use real values for your *Sales* figures and did not yet have the figure for your 4th Quarter:

- Enter **NA [RETURN]** into cell E5.

This tells SuperCalc3 that you intend to have a value here at some future time so the value of the cell should be considered as *Not available*. Note that all the other cells that depend upon the value in E5 also contain N/A, as in Screen 5-25.

5

CHAPTER

LEARNING TO USE SUPERCALC3

Income Statement					
XYZ CORPORATION					
	Q1	Q2	Q3	Q4	Year
Sales	25000.00	20000.00	35000.00	N/A	N/A
Costs	11250.00	9000.00	16750.00	N/A	N/A
Profit	13750.00	11000.00	19250.00	N/A	N/A
EXPENSES					
Consultant Fees	3000.00	2400.00	4200.00	N/A	N/A
General & Admin	3750.00	3000.00	5250.00	N/A	N/A
Rent	2812.50	2250.00	3937.50	N/A	N/A
Utilities	375.00	300.00	525.00	N/A	N/A
Telephone	562.50	450.00	787.50	N/A	N/A
Total Expenses	6750.00	5400.00	9450.00	N/A	N/A
Net Before Tax	7000.00	5600.00	9800.00		

>E5 Form: NA
Width: 15 Memory: 73 Last Col/Row: G19 ? for HELP
1>

Screen 5-25: Using a NA Value

NA and ERROR behave identically; the difference is the display: N/A or ERROR. By using NA, you inform yourself of the ramifications of any incompleteness or oversights.

You may either *Quit* here or *Zap* your screen and continue on to Lesson 5.

What have you learned in this lesson?

- How to use the *Insert*, *Delete*, and *Move* commands.
- That those commands automatically adjust your formulas to fit the new spreadsheet.

- That formulas do not adjust when you insert or delete at the boundaries of specified ranges.
- That when you delete a cell that is referred to by formulas elsewhere, you get an error message. You learned how to fix that error.
- How to use NA as a reminder to enter important information.

Lesson 5

Format

By this time you have many of the basics that you need. This lesson helps you add some finishing touches to a spreadsheet by demonstrating the various display format options available.

Load the Lesson 4 spreadsheet.

- **/Load,/DATA/LESSON4,All.**
- Make sure your display matches sample Screen 5-26.

XYZ CORPORATION					
	Q1	Q2	Q3	Q4	Year
Sales	25000.00	20000.00	35000.00	25000.00	105000.00
Costs	11250.00	9000.00	15750.00	11250.00	47250.00
Profit	13750.00	11000.00	19250.00	13750.00	57750.00
EXPENSES					
Consultant Fees	3000.00	2400.00	4200.00	3000.00	12600.00
General & Admin	3750.00	3000.00	5250.00	3750.00	15750.00
Rent	2812.50	2250.00	3937.50	2812.50	11812.50
Utilities	375.00	300.00	525.00	375.00	1575.00
Telephone	562.50	450.00	787.50	562.50	2362.50
Total Expenses	6750.00	5400.00	9450.00	6750.00	28350.00
Net Before Tax	7000.00	5600.00	9800.00	7000.00	29400.00
Income Tax	1400.00	1120.00	1960.00	1400.00	5880.00

Screen 5-26: LESSON 4 Spreadsheet

The display options are set with the *Format* command. When you enter **/Format**, the prompt line responds with:

Enter Level: G(lobal), C(olumn), R(ow), E(ntry) or D(efine)

Levels of Formatting

There are four levels of display formats. In order of precedence, they are: Entry, Row, Column, and Global. Although several format levels may be in operation on a spreadsheet, only one format level can operate for any one cell at a time.

A format characteristic you assign on the Global level, can be overwritten by one you assign on the Column, Row, or Entry levels. The *Entry* level takes the highest precedence.

Note that what you specify for a Row takes precedence over the Column level. If you want to affect an entire column, but you want it to take precedence over a row, you could use the Entry level command and define a column range.

As you go through the various exercises, watch for this order of precedence and how it affects your work.

The last option, *Define*, has nothing to do with the levels of precedence. Instead, it gives you an opportunity to establish additional display format characteristics through a User-defined format table.

Formatting Characteristics

After you select the level of format assignment, the prompt line displays:

Define Formats: (I,G,E,\$,R,L,TR,TL,TC,%,U(1-8),H,D,column width)

There are five format groups among these options. Only one option from each group is in effect at a time. If you enter more than one from the same format group, only the last one entered is recognized.

(1) Numeric value display options (I,G,E,\$,%,U(1-8),H).

(2) Numeric alignment options (R and L).

(3) Text alignment options (TR, TL, TC).

(4) Column width (number of characters).

(5) Default settings (G, R, TL; 9).

Let's review the formatting you've used on the Income Statement so far. These format characteristics are stored with the file on disk and are still in effect for the assigned levels.

In the *10 minutes* booklet you used two format commands:

/Format,Global,12 [RETURN].

This changed the display width of all the columns from the standard 9 characters to 12.

/Format,Row,3,TextRight, [RETURN].

This *right-justified* the column titles in row 3, aligning them along the right margin of each column.

In Lesson 2 you increased the width of column A with this command:

/Format,Column,A,15 [RETURN].

In Lesson 3 you set the money display format to display numeric values with 2 decimal places.

/Format,Global,\$ [RETURN].

These format characteristics are stored with the file on disk and are still in effect.

Now, take a look at the other formatting possibilities.

Justification

Left-justified text and right-justified numbers are standard or *default* display format values used when you start a fresh spreadsheet.

If you want to align your numbers along the left margin of a column, you can do so. Try it:

- ▶ Enter **/Format,Column,B,Left, [RETURN]**.

Notice this misaligns the decimal points.

- ▶ Now restore the column using the same command substituting **Right** for **Left**.

You can use the text justification option in the same way. The default of `TextLeft` allows the *spill over* feature for both text and repeating text entries.

Now is a good time to add some more lines to the Income Statement.

- ▶ At B9 enter **'- [RETURN]**.
- ▶ Do the same thing for row 17 and 21.
- ▶ Insert a row at 23 and at B23 enter **'= [RETURN]**.

- ▶ Go to column G and cut off each of the four lines with another **[RETURN]**.

- ▶ Now enter:

/Format,Global,TextRight [RETURN].

- ▶ Press **[Apple H]**.

Notice that the repeating text doesn't work now.

- ▶ Restore the repeating text by entering:

/Format,Global,TextLeft [RETURN].

A good rule is to carefully assign TextRight justification only where you need it — by Rows, Columns, or at the Entry level.

User-Defined Formats

- ▶ To get to the User-defined format table in sample Screen 5-27 enter:

/Format,Define.

User-defined formats give you the flexibility to assign more than one characteristic. You have seven rows of characteristics from which to choose. You can combine them in up to 8 different format columns.

The default (pre-set) for all 8 formats automatically provides for three of the characteristics:

- A *Floating \$* sign appears as the leftmost digit of a value.

	User-defined formats							
	1	2	3	4	5	6	7	8
Floating \$	Y	Y	Y	Y	Y	Y	Y	Y
Embedded Commas	Y	Y	Y	Y	Y	Y	Y	Y
Minus in ()	N	N	N	N	N	N	N	N
Zero as Blank	N	N	N	N	N	N	N	N
X	N	N	N	N	N	N	N	N
Decimal Places	2	2	2	2	2	2	2	2
Scaling factor	0	0	0	0	0	0	0	0
> A1 Text="Income Statement								
Y(es) or N(o) ?								
15>/Format,Define								

Screen 5-27: Default Format Table

- *Embedded Commas* appear every third place to the left of a decimal.
- The *Decimal Places* is set to two, which has the same effect as the Money (\$) Format option.

5

CHAPTER

LEARNING TO USE SUPERCALC3

Let's retain the default settings for User-defined format 1 — don't make any changes to column 1. You can use it later to get a Floating \$ for the first row of figures on your Income Statement.

Embedded Commas without the Floating \$ might look good in all the other dollar figures on the statement. Let's use User-defined format 2 for this:

- ▶ Move the cursor to column 2 in the Floating \$ row and change the Y to **N**.
- The *Percent* “%” option multiplies a cell value by 100 and displays it with a “%” appended.

You may recall the formula that gave you the % of *Total* figures in the last row of the Income Statement. You could omit the *100, and assign the “%” option to that row. Try it out.

- ▶ Move the cursor to column 3 in the Floating \$ row of the table and change “Y” to NW
- ▶ Now move down to the “%” row and change N to **Y**.

While you're about it, you can request a change for the percentage figures to show only one digit after the decimal:

- ▶ Move the cursor in column 3 down to Decimal Places and change the 2 to **1**.

Now take a moment to review your entries. They should match sample Screen 5-28.

You have a new percentage format for User-defined format 3, and the embedded commas without floating dollars for format 2. Format 1 is reserved for the default, but feel free to experiment with columns 4-8.

User-defined formats								
	1	2	3	4	5	6	7	8
Floating \$	Y	N	N	Y	Y	Y	Y	Y
Embedded Commas	Y	Y	Y	Y	Y	Y	Y	Y
Minus in ()	N	N	N	N	N	N	N	N
Zero as Blank	N	N	N	N	N	N	N	N
%	N	N	Y	N	N	N	N	N
Decimal Places	2	2	1	2	2	2	2	2
Scaling factor	0	0	0	0	0	0	0	0


```

> A1      Text="Income Statement
Enter number from (0 - 7)
15>/Format,Define

```

Screen 5-28: Format Table Redefined

What other possibilities do you have?

- *Minus in ()* places negative numbers in parentheses, rather than using the SuperCalc3 standard of preceding the number with a minus sign.
- *Zero as Blank* replaces zero value cells with blanks.
- *Scaling Factor* specifies the power of ten by which a cell value is divided. If you set the scaling factor to 3, for example, a cell value of \$3000 appears as \$3.

- When you're ready to return to your spreadsheet, enter **[Apple 2]**.

Note that in this case **[Apple 2]** returns you to the spreadsheet. It does not zap your entries on the table.

Assigning User-defined Format Characteristics

- First assign User-defined format 1 to row 5. Enter:

/Format,Row,5,User-defined1 [RETURN]

Floating \$ signs and Embedded Commas appear in row 5.

- Now assign User-defined format 2 at the Global level. Enter:

/Format,Global,User-defined2 [RETURN]

The commas now appear throughout the spreadsheet, and the two decimal places are retained as in Screen 5-29.

Note that this global assignment did not overwrite the Floating \$ in row 5 because row assignment has higher precedence than global assignment.

Before you can display the new percentage format properly, you'll have to change the existing formula.

*If a cell shows >>>> data
does not fit - widen it!!*

5	A					
6	Sales	\$25,000.00	\$20,000.00	\$35,000.00	\$25,000.00	\$105,000.00
7	Costs	11,250.00	9,000.00	15,750.00	11,250.00	47,250.00
8	Profit	13,750.00	11,000.00	19,250.00	13,750.00	57,750.00
9						
10	EXPENSES					
11	Consultant Fees	3,000.00	2,400.00	4,200.00	3,000.00	12,600.00
12	General & Admin	3,750.00	3,000.00	5,250.00	3,750.00	15,750.00
13	Rent	2,812.50	2,250.00	3,937.50	2,812.50	11,812.50
14	Utilities	375.00	300.00	525.00	375.00	1,575.00
15	Telephone	562.50	450.00	787.50	562.50	2,362.50
16						
17	Total Expenses	6,750.00	5,400.00	9,450.00	6,750.00	28,350.00
18	Net Before Tax	7,000.00	5,600.00	9,800.00	7,000.00	29,400.00
19	Income Tax	1,400.00	1,120.00	1,960.00	1,400.00	5,880.00
20						
21	Net Income	5,600.00	4,480.00	7,840.00	5,600.00	23,520.00
22						
23	% of Total	23.81	19.05	33.33	23.81	
24						

Screen 5-29: Global Embedded Commas

- Enter **/Global,Protect** to temporarily toggle off cell protection for editing purposes.

Note:

Protection is still in effect for major operations like *Blank* or *Delete*.

- Move the cursor to B24 and edit its content by deleting the *100.
- *Replicate* the new formula in cell B24, using the manual adjust to hold F22 constant. Enter:

/Replicate,B24,C24:E24,Ask,Yes,No

- Enter **/Global,Protect** to turn cell protection back on and guard against accidental changes via direct entry or Edit.

5

CHAPTER

LEARNING TO USE SUPERCALC3

- Now assign User-defined format 3 to the row, but specify it at the Entry level:

/Format,Entry,B24:E24,User-defined3 [RETURN]

The new format of a single decimal digit followed by % appears in cells B24 through E24 as you see in Screen 5-30.

Move the cursor to B24 and note that a "3" appears in the status line, indicating an *entry-level* User-defined format 3.

	B				
5	Sales	\$25,000.00	\$20,000.00	\$35,000.00	\$25,000.00 \$105,000.00
6	Costs	11,250.00	9,000.00	15,750.00	11,250.00 47,250.00
7					
8	Profit	13,750.00	11,000.00	19,250.00	13,750.00 57,750.00
9					
10					
11	EXPENSES				
12	Consultant Fees	3,000.00	2,400.00	4,200.00	3,000.00 12,600.00
13	General & Admin	3,750.00	3,000.00	5,250.00	3,750.00 15,750.00
14	Rent	2,812.50	2,250.00	3,937.50	2,812.50 11,812.50
15	Utilities	375.00	300.00	525.00	375.00 1,575.00
16	Telephone	562.50	450.00	787.50	562.50 2,362.50
17					
18	Total Expenses	6,750.00	5,400.00	9,450.00	6,750.00 28,350.00
19	Net Before Tax	7,000.00	5,600.00	9,800.00	7,000.00 29,400.00
20	Income Tax	1,400.00	1,120.00	1,960.00	1,400.00 5,880.00
21					
22	Net Income	5,600.00	4,480.00	7,840.00	5,600.00 23,520.00
23					
24	% of Total	23.8%	19.0%	33.3%	23.8%
=====					
v B24 3 Form= B22/F22					
Width: 12 Memory: 73 Last Col/Row: 624 ? for HELP					
1>					

Screen 5-30: Percent (%) Format With One Decimal Place

One advantage of using Entry level display format is that the current options appear on the status line.

Your Income Statement looks quite professional, doesn't it? It's worthy of a printed copy.

- ▶ Enter **/Output,Display,ALL,Setup**
- ▶ At the Setup menu toggle the Border option to OFF, then, enter **Print**.
- ▶ Save your file as **/DATA/LESSON5** before moving on to some experimentation. The User-defined format table is saved as part of the file.

Hide Option

You know how to protect a cell from being modified, but what if you want to keep certain information confidential? The *Hide* option allows you to specify cells whose values you do not want displayed or printed.

Suppose you want to keep your Net Income confidential. Enter:

- ▶ **/Format,Entry,B22:F22,Hide [RETURN]**
- ▶ Go to B22 and read the status line.

Note the "H" in the status line indicating an entry-level *Hide* option.

You can still read the formulas for individual cells at the status line, but the value does not display.

Now take a look at a more complex issue, numeric representation, and some of its options.

General Display Format

Is your spreadsheet displaying values? For numeric representation you need to look at cell *values* not formulas.

- ▶ If you need to change the display to values, use **/Global,Formulas**
- ▶ Enter **/Format,Global**. Look at the prompt line:

Define Formats: (I,G,E,\$,R,L,TR,TL,TC,*,U(1-8),H,D,column width)

This time the *G* stands for *General*, the standard display format for numeric values.

- ▶ Add the second *G* to complete the entry line:

/Format,Global,General [RETURN]

The General display format replaces the Global User-defined format of embedded commas and two decimal places, as in Screen 5-31. But it does not replace the Row format in row 5, or the Entry level format in row 24.

	8				
Sales	\$25,000.00	\$20,000.00	\$35,000.00	\$25,000.00	\$105,000.00
Costs	11250	9000	15750	11250	47250
Profit	13750	11000	19250	13750	57750
EXPENSES					
Consultant Fees	3000	2400	4200	3000	12600
General & Admin	3750	3000	5250	3750	15750
Rent	2812.5	2250	3937.5	2812.5	11812.5
Utilities	375	300	525	375	1575
Telephone	562.5	450	787.5	562.5	2362.5
Total Expenses	6750	5400	9450	6750	28350
Net Before Tax	7000	5600	9800	7000	29400
Income Tax	1400	1120	1960	1400	5880
Net Income					
% of Total	23.8%	19.0%	33.3%	23.8%	
B22 H	Form= B19-B20				
Width: 12	Memory: 73	Last Col/Row: G24	?	for HELP	
12					

Screen 5-31: General Display Format

- At B5 add seven or more zeroes to the 25000.

Look at what happens in sample Screen 5-32.

In General format, SuperCalc3 tries to find the *best fit* to display a large value.

First the program tries to display the value as an integer (whole number).

When the value doesn't fit as an integer, the program tries to convert it to scientific or exponential notation — using an "e" to delineate the numeral from the order of magnitude (the exponent). It rounds off the value as necessary, even if it can only display one significant digit, the "e" and the exponent.

5

CHAPTER

LEARNING TO USE SUPERCALC3

If a User-defined Floating \$ or embedded comma is assigned, the program uses >>>>> to tell you that the value is greater than the width can display.

5	Sales	>>>>>>>>>	\$20,000.00	\$35,000.00	\$25,000.00	>>>>>>>>>
6	Costs	1.125e11	9000	15750	11250	1.125000e11
8	Profit	1.375e11	11000	19250	13750	1.375000e11
10	EXPENSES					
11	Consultant Fees	300000000000	2400	4200	3000	300000009600
12	General & Admin	375000000000	3000	5250	3750	37500012000
13	Rent	281250000000	2250	3937.5	2812.5	28125009000
14	Utilities	375000000000	300	525	375	3750001200
15	Telephone	562500000000	450	787.5	562.5	5625001800
17	Total Expenses	675000000000	5400	9450	6750	67500021600
18	Net Before Tax	700000000000	5600	9800	7000	70000022400
19	Income Tax	140000000000	1120	1960	1400	14000004800
21	Net Income					
23	% of Total	100.0%	.0	.0	.0	
24	Form=	2500000000000				
35	Width: 12	Memory: 73	Last Col/Row: 624	?	for HELP	

Screen 5-32: General Display Format Best Fit

In this case all three displays appear:

- The Sales figure you entered at A5 and the resulting Year's Income in F5 do not fit with the Floating \$ and Embedded Commas, so the program resorts to the >>>>> display.
- The values in B6, B8, F6, and F8 are converted to exponential notation.
- The remaining values are small enough to fit as integers.

Finally, note that the User-defined formats assigned at rows 5 and 24 take precedence over the Global format.

The Integer format displays all values rounded to the nearest whole number.

Here's how it works:

- Enter **/Format,Global,Integer** [RETURN]

	B	D	F	H
Sales	>>>>>>>>>>	\$20,000.00	\$35,000.00	\$25,000.00
Costs	>>>>>>>>>>	9000	15750	11250
Profit	>>>>>>>>>>	11000	19250	13750

EXPENSES				
Consultant Fees	300000000000	2400	4200	3000
General & Admin	375000000000	3000	5250	3750
Rent	281250000000	2250	3938	2813
Utilities	375000000000	300	525	375
Telephone	562500000000	450	788	563

Total Expenses	675000000000	5400	9450	6750
Net Before Tax	700000000000	5600	9800	7000
Income Tax	140000000000	1120	1960	1400

Net Income				
=====				
% of Total	100.0%	.0	.0	.0

85 Form= 250000000000
 Width: 12 Memory: 73 Last Col/Row:624 ? for HELP
 1>

Screen 5-33: Integer Display Format

Except for rows 5 and 24 whose Row display format takes precedence over this Global display format, only the integer portion of the values appear as in Screen 5-33.

Also note that the exponential notation in columns B and F has been replaced with >>>>> which means the integer value won't fit.

Note:

There is a difference between the Integer format and the INT function used in formulas. The INT function drops the fraction and returns the value of the whole number only. The integer display format rounds off a fraction and displays the resulting whole number, but retains the original value in its entirety for calculation purposes.

When you look at numbers in Integer display format, and some of the calculation results appear to be inaccurate, remember that the program may be using fractions in its calculation that you cannot see.

- Again enter **/Format,Global,General** [**RETURN**]

The values in columns C and D appear again as decimals.

Exponential Display Format

You saw how in General display format SuperCalc3 displays a number too wide for a column using exponential notation, but does not convert a number small enough to fit. The Exponential display format option displays all numbers as powers of 10. See the Exponential Display Table.

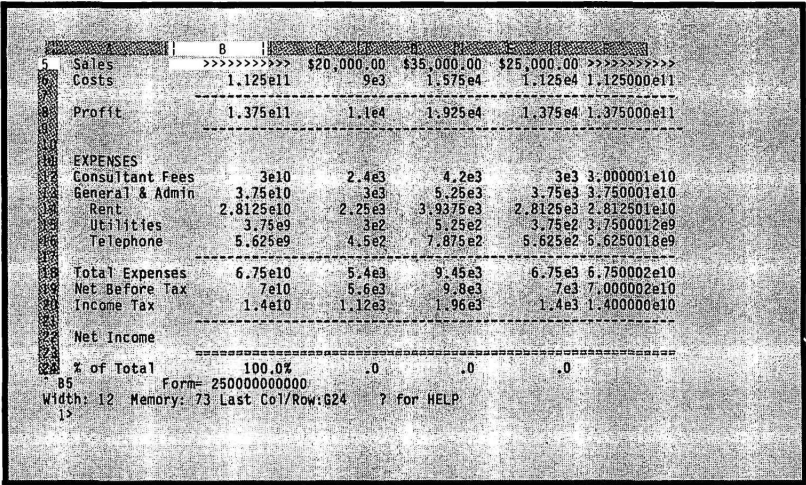
- Enter **/Format,Global,Exponent**, [**RETURN**]

Your spreadsheet should look like sample Screen 5-34.

SuperCalc3 converts all data to Exponential display format. The User-defined format with the Floating \$ and Embedded Commas for the larger numbers in row 4 still must resort to the >>>>> notation.

Value	Represents	Displays as
1776	1.776×10^3	1.776e3
1,000,000	1.0×10^6	1.0e6
0.052	5.2×10^{-2}	5.2e-2
-430	-4.2×10^2	-4.3e2
-0.0007	-7×10^{-4}	-7e-4

Illustration 5-4: Exponential Display Table



The screenshot shows a SuperCalc3 spreadsheet with the following data:

5	Sales	>>>>>>>>	\$20,000.00	\$35,000.00	\$25,000.00	>>>>>>>>
6	Costs	1.125e11	9e3	1.575e4	1.125e4	1.125000e11
7	Profit	1.375e11	1.1e4	1.925e4	1.375e4	1.375000e11
8	EXPENSES					
9	Consultant Fees	3e10	2.4e3	4.2e3	3e3	3.000001e10
10	General & Admin	3.75e10	3e3	5.25e3	3.75e3	3.750001e10
11	Rent	2.8125e10	2.25e3	3.9375e3	2.8125e3	2.812501e10
12	Utilities	3.75e9	3e2	5.25e2	3.75e2	3.7500012e9
13	Telephone	5.625e9	4.5e2	7.875e2	5.625e2	5.6250018e9
14	Total Expenses	6.75e10	5.4e3	9.45e3	6.75e3	6.750002e10
15	Net Before Tax	7e10	5.6e3	9.8e3	7e3	7.000002e10
16	Income Tax	1.4e10	1.12e3	1.96e3	1.4e3	1.400000e10
17	Net Income					
18	% of Total		100.0%	.0	.0	.0
19	Form	2500000000000				
20	Width: 12	Memory: 73	Last Col/Row: G24	7	for HELP	

Screen 5-34: Exponential Display Format

LEARNING TO USE SUPERCALC3

Money (\$) Display Format

By this time you may be wondering if your spreadsheet will ever look like a financial statement again. Perhaps it's time to restore it to the familiar money display format.

- Enter **/Format,Global,\$, [RETURN]**

	B	C	D	E
Sales	>>>>>>>>>	\$20,000.00	\$35,000.00	\$25,000.00
Costs	>>>>>>>>>	9000.00	15750.00	11250.00
Profit	>>>>>>>>>	11000.00	19250.00	13750.00
<hr/>				
EXPENSES				
Consultant Fees	>>>>>>>>>	2400.00	4200.00	3000.00
General & Admin	>>>>>>>>>	3000.00	5250.00	3750.00
Rent	>>>>>>>>>	2250.00	3937.50	2812.50
Utilities	>>>>>>>>>	300.00	525.00	375.00
Telephone	>>>>>>>>>	450.00	787.50	562.50
<hr/>				
Total Expenses	>>>>>>>>>	5400.00	9450.00	6750.00
Net Before Tax	>>>>>>>>>	5600.00	9800.00	7000.00
Income Tax	>>>>>>>>>	1120.00	1960.00	1400.00
<hr/>				
Net Income				
<hr/>				
% of Total	100.0%	.0	.0	.0

B5 Form= 2500000000000
 Width: 12 Memory: 73 Last Col/Row: G24 ? for HELP
 1>

Screen 5-35: Money (\$) Display Format

Numbers are rounded to the nearest cent, as in Screen 5-35. Note that the program adds the ".00" to whole numbers. But the added decimals make the display in columns B and F too large to fit.

Default Format

The Default option is useful when you want to remove format options previously assigned.

To remove the Hide option you assigned earlier to your *Net Income* figures enter:

► **/Format,Entry,B22:F22,Default [RETURN]**

This removes all format instructions for B22:F22 at the Entry level only. The global formats assigned to B22:F22 still apply.

Now try another experiment:

► Enter **/Format,Column,C,Exponent, [RETURN]**

The exponential notation returns to column C as in sample Screen 5-34. Notice how the Exponential format at the Column level takes precedence over the Money (\$) format at the Global level but does not override the User-defined (Floating \$ and Embedded Commas) at the Row level for row 5 or the Entry level formats in row 24.

When you use Default at the Global level the program falls back on the standard default formats in effect when you first load SuperCalc3: General numeric representation, Right numeric justification, TextLeft justification and 9 character column width.

But notice that the Column and Entry level formats are still in effect. So is the format in row 5, but since the default resets the margins to 9, the values no longer fit with the Floating \$ and Embedded Commas.

Fortunately you saved your file on Drive B as LESSON5. You can now *Zap* the screen before you go on or *Quit*.

One display format option remains — the "*" display, which represents values with asterisks. This option is best demonstrated with a split screen, so we'll take it up at the end of the next lesson.

5

C H A P T E R

LEARNING TO USE SUPERCALC3

This Lesson has covered the following:

- How to change justification for text or numbers.
- How to specify and assign the User-defined format characteristics.
- How formats can be entered at the *Global*, *Column*, *Row* or *Entry-level*.
- How to use the *Integer*, *General*, *Exponential*, and *\$* formats for numeric display.
- How to remove assigned formats with the *Default* format.

Lesson 6

Title Lock and Window (Split Screen)

You now know enough about the many commands and format options, to put SuperCalc3 to practical use. This lesson adds two more commands to your store of tools.

One of them, *Title lock*, keeps a portion of the spreadsheet locked in place while you scroll the rest of the screen. It is called *title lock* because locking titles can be especially useful, but any part of the screen can be locked. The other command, *Window*, lets you *split* your screen to look at different parts of your spreadsheet at the same time.

Title Lock

- First *Load* the LESSON5 file and make sure it matches sample Screen 5-37 with the cursor in A1.

XYZ CORPORATION					
	Q1	Q2	Q3	Q4	Year
Sales	\$25,000.00	\$20,000.00	\$35,000.00	\$25,000.00	\$105,000.00
Costs	11,250.00	9,000.00	15,750.00	11,250.00	47,250.00
Profit	13,750.00	11,000.00	19,250.00	13,750.00	57,750.00
EXPENSES					
Consultant Fees	3,000.00	2,400.00	4,200.00	3,000.00	12,600.00
General & Admin	3,750.00	3,000.00	5,250.00	3,750.00	15,750.00
Rent	2,812.50	2,250.00	3,937.50	2,812.50	11,812.50
Utilities	375.00	300.00	525.00	375.00	1,575.00
Telephone	562.50	450.00	787.50	562.50	2,362.50
Total Expenses	6,750.00	5,400.00	9,450.00	6,750.00	28,350.00
Net Before Tax	7,000.00	5,600.00	9,800.00	7,000.00	29,400.00
Income Tax	1,400.00	1,120.00	1,960.00	1,400.00	5,880.00

A1 Text="Income Statement
 Width: 15 Memory: 73 Last Col/Row: G24 ? for HELP
 1>

Screen 5-37: LESSON5 Spreadsheet

5

CHAPTER

LEARNING TO USE SUPERCALC3

- Enter **/Title**.

The prompt line asks:

H(orz.), V(ert.), B(oth), or C(lear)?

- Enter **Vertical** and move the cursor off the screen to the right.

	Q4	Year
Sales	\$25,000.00	\$105,000.00
Costs	11,250.00	47,250.00
Profit	13,750.00	57,750.00
EXPENSES		
Consultant Fees	3,000.00	12,600.00
General & Admin	3,750.00	15,750.00
Rent	2,812.50	11,812.50
Utilities	375.00	1,575.00
Telephone	562.50	2,362.50
Total Expenses	6,750.00	28,350.00
Net Before Tax	7,000.00	29,400.00
Income Tax	1,400.00	5,880.00

> 11
Width: 12 Memory: 73 Last Col/Row: G24 ? for HELP
1>

Screen 5-38: Vertical Title Lock

Notice that the titles in column A are *locked* in place, as in Screen 5-38, while the rest of the screen scrolls as usual. The position of the Active Cell when you enter the *Title* command determines how much of the screen will be locked in place.

- Press **[Apple H]**.
- Use an arrow key to move the cursor to A4.

This time enter **/Title, H**orizontal to lock the top four rows in place.

Income Statement					
XYZ CORPORATION					
	Q1	Q2	Q3	Q4	Year
EXPENSES					
Consultant Fees	3,000.00	2,400.00	4,200.00	3,000.00	12,600.00
General & Admin	3,750.00	3,000.00	5,250.00	3,750.00	15,750.00
Rent	2,812.50	2,250.00	3,937.50	2,812.50	11,812.50
Utilities	375.00	300.00	525.00	375.00	1,575.00
Telephone	562.50	450.00	787.50	562.50	2,362.50
Total Expenses	6,750.00	5,400.00	9,460.00	6,750.00	28,350.00
Net Before Tax	7,000.00	5,600.00	9,800.00	7,000.00	29,400.00
Income Tax	1,400.00	1,120.00	1,960.00	1,400.00	5,880.00
Net Income	5,600.00	4,480.00	7,840.00	5,600.00	23,520.00
% of Total	23.8%	19.0%	33.3%	23.8%	

v A25
 Width: 15 Memory: 73 Last Col/Row:624 ? for HELP
 1>

Screen 5-39: Horizontal Title Lock

- Move the spreadsheet cursor down the screen, and watch the information scroll up while the first four row titles stay in place, as in Screen 5-39.

Now clear the locked row:

- Enter **/Title, Clear**.

You are telling SuperCalc3 that you do not want anything locked.

- Press **[Apple H]**.
- Use an arrow key to move the cursor to A4.

This time lock both the Horizontal and Vertical titles with one command:

- ▶ Enter **/Title,Both**. This locks column A, and rows 1 through 4.
- ▶ Move the cursor around the spreadsheet. Note that rows 1 through 4 stay in place when you scroll down and back up, and column A stays in place when you scroll left and then back.

Window — Split Screen

What if you want to view two widely separated areas of your spreadsheet at the same time?

- ▶ Scroll down until *% of Total* appears on line 24.
- ▶ Use an arrow key to move the cursor up to row 18. This designates where to *split* the screen.
- ▶ Enter **/Window**,

The prompt reads:

H(orz.), V(ert.), C(lear), S(ynch), or U(nsynch)

- ▶ Enter **H**orizontal.

Notice that starting at row 18 there is a second border of column letters for a second display window, as in Screen 5-40. The spreadsheet data has not been duplicated, only displayed twice through the two windows you have created. Either window may now be scrolled independently.

- ▶ Scroll in the lower window and notice that the top window remains stationary.
- ▶ Scroll back so that rows 18 through 23 are in view.
- ▶ Now press the (;) key.

This transfers you to the top window.

You can scroll to the top of the upper display and perform *what ifs* on sales and expenses, while keeping an eye on what happens to your totals in the lower display.

Income Statement					
XYZ CORPORATION					
	01	02	03	04	Year
EXPENSES					
Consultant Fees	3,000.00	2,400.00	4,200.00	3,000.00	12,600.00
General & Admin	3,750.00	3,000.00	5,250.00	3,750.00	15,750.00
Rent	2,812.50	2,250.00	3,937.50	2,812.50	11,812.50
Utilities	375.00	300.00	525.00	375.00	1,575.00
Telephone	562.50	450.00	787.50	562.50	2,362.50
Total Expenses	6,750.00	5,400.00	9,450.00	6,750.00	28,350.00
Net Before Tax	7,000.00	5,600.00	9,800.00	7,000.00	29,400.00
Income Tax	1,400.00	1,120.00	1,960.00	1,400.00	5,880.00
Net Income	5,600.00	4,480.00	7,840.00	5,600.00	23,520.00

Screen 5-40: Window Horizontal Split

5

CHAPTER

LEARNING TO USE SUPERCALC3

Another feature of split screens is that each window has its own identity for the *Global* command. You could specify formula display in one window and cell value display in the other. Try it.

► Enter **/Global,Formula**.

The window in which your current cell is located changes to formula display, as in Screen 5-41.

Likewise, you could use *Format* command at the Global level to specify General format in one window and Integer in the other. This makes it possible to look at the same data in two different formats at once. Note, however, that Row, Column, or Entry level formats take precedence for both windows over the Global settings.

Instead of splitting the screen horizontally, you can also split it vertically. However, before you can split the display vertically you must return to a single window display.

XYZ CORPORATION					
Income Statement					
	Q1	Q2	Q3	Q4	Year
EXPENSES					
Consultant Fees	12XB5	12XC5	12XD5	12XE5	12XF5
General & Admin	15XB5	15XC5	15XD5	15XE5	15XF5
Rent	75XB13	75XC13	75XD13	75XE13	75XF13
Utilities	10XB13	10XC13	10XD13	10XE13	10XF13
Telephone	15XB13	15XC13	15XD13	15XE13	15XF13
Total Expenses	6,750.00	5,400.00	9,450.00	6,750.00	28,350.00
Net Before Tax	7,000.00	5,600.00	9,800.00	7,000.00	29,400.00
Income Tax	1,400.00	1,120.00	1,960.00	1,400.00	5,880.00
Net Income	5,600.00	4,480.00	7,840.00	5,600.00	23,520.00

B17 Rtxt='-
Width: 12 Memory: 73 Last Col/Row: G24 ? for HELP
1>

Screen 5-41: Horizontal Window — Value/Formula Display

- Enter **/Window, Clear**.
- Enter **/Global, Formula** for value display.
- Use an arrow key to move the cursor to column D.
- Enter **/Window, Vertical**.

This produces a left-hand border for a second display like sample Screen 5-42.

The Synchronous option tells SuperCalc3 that you want to scroll both windows in a *synchronized* fashion. That is, you want them to scroll simultaneously:

- Enter **/Window, Synchronous**.

Income Statement		XYZ CORPORAT I			
	Q1	Q2	Q3	Q4	
Sales	\$25,000.00	\$20,000.00	\$35,000.00	\$25,000.00	
Costs	11,250.00	9,000.00	15,750.00	11,250.00	
Profit	13,750.00	11,000.00	19,250.00	13,750.00	
EXPENSES					
Consultant Fees	3,000.00	2,400.00	4,200.00	3,000.00	
General & Admin.	3,750.00	3,000.00	5,250.00	3,750.00	
Rent	2,812.50	2,250.00	3,937.50	2,812.50	
Utilities	375.00	300.00	525.00	375.00	
Telephone	562.50	450.00	787.50	562.50	
Total Expenses	6,750.00	5,400.00	9,450.00	6,750.00	
Net Before Tax	7,000.00	5,600.00	9,800.00	7,000.00	
Income Tax	1,400.00	1,120.00	1,960.00	1,400.00	

> D1
Width: 12 Memory: 73 Last Col/Row: 624 ? for HELP
1>

Screen 5-42: Window — Vertical Split

5

CHAPTER

LEARNING TO USE SUPERCALC3

- Now scroll the displays together by moving the spreadsheet cursor up or down, parallel to the split.

Handy, isn't it? Yet when you move perpendicular to the split, only the one side scrolls.

- Scroll to show columns B and C on both sides of the display as in sample Screen 5-43.
- Change the display on one side of the screen to show formulas.

Now you can scroll down through the data in one window and compare it to the formulas as you go.

- Turn off the formula display and experiment with different format commands to view the values in different format displays at the same time.

Income Statement				XYZ CORPORAT			
		Q1	Q2			Q1	Q2
Sales		\$25,000.00	\$20,000.00			25000	20000
Costs		11,250.00	9,000.00			45%B5	45%C5
Profit		13,750.00	11,000.00			B5-B6	C5-C6
EXPENSES							
Consultant Fees		3,000.00	2,400.00			12%B5	12%C5
General & Admin		3,750.00	3,000.00			15%B5	15%C5
Rent		2,812.50	2,250.00			75%B13	75%C13
Utilities		375.00	300.00			10%B13	10%C13
Telephone		562.50	450.00			15%B13	15%C13
Total Expenses		6,750.00	5,400.00			SUM(B13:B12)	SUM(C12:C13)
Net Before Tax		7,000.00	5,600.00			B8-B18	C8-C18
Income Tax		1,400.00	1,120.00			20%B19	20%C19

Width: 12 Memory: 73 Last Col/Row: 624 ? for HELP
1>

Screen 5-43: Vertical Window — Value/Formula Display

To *unsynchronize* the displays so that only one window will scroll at a time:

► Enter **/Window,Unsynchronous**

Note that when you save your spreadsheet, any *title lock* or *split screen* information is included. When you load your work again, it will look exactly as it did before.

Asterisk Representation

We promised you a look at the * option of the *Format* command after you had learned how to split screens. Look at sample Screen 5-44.

The formula displayed in the top window scales the * representation relative to the maximum value. The command **/Format,Column,B,50,*** [RETURN] was entered for the bottom window.

```

      (A1-MIN(A1:A10))*50/(MAX(A1:A10)-MIN(A1:A10))
      (A2-MIN(A2:A11))*50/(MAX(A2:A11)-MIN(A2:A11))
      (A3-MIN(A3:A12))*50/(MAX(A3:A12)-MIN(A3:A12))
      (A4-MIN(A4:A13))*50/(MAX(A4:A13)-MIN(A4:A13))
      (A5-MIN(A5:A14))*50/(MAX(A5:A14)-MIN(A5:A14))
      (A6-MIN(A6:A15))*50/(MAX(A6:A15)-MIN(A6:A15))
      (A7-MIN(A7:A16))*50/(MAX(A7:A16)-MIN(A7:A16))
      (A8-MIN(A8:A17))*50/(MAX(A8:A17)-MIN(A8:A17))
      (A9-MIN(A9:A18))*50/(MAX(A9:A18)-MIN(A9:A18))
      (A10-MIN(A10:A19))*50/(MAX(A10:A19)-MIN(A10:A19))
      B
      1 45 *****
      3 3 ***
      12 12 ***
      50 *****
      22 *****
      31 *****
      9 9
      27 *****
      19 19
      B1 Form=(A1-MIN(A1:A10))*50/(MAX(A1:A10)-MIN(A1:A10))
      Width: 50 Memory: 73 Last Col/Row:B20 ? for HELP
      1>
  
```

Screen 5-44: Asterisk Representation

What have you learned in this lesson?

- How to lock rows or columns in place so that they will remain in place while the rest of the screen scrolls.
- How to split the screen, either horizontally or vertically, into two windows and how to move back and forth from one *window* to the other.
- How to *synchronize* the windows.
- How to specify different global display options (cell values or formulas) and format options for each window.
- How to use * Asterisk Representation.

Lesson 7

Graphing

In Lesson 7 you will learn how easy it is to build graphs with the View command. Here are the six types of graphs you will build:

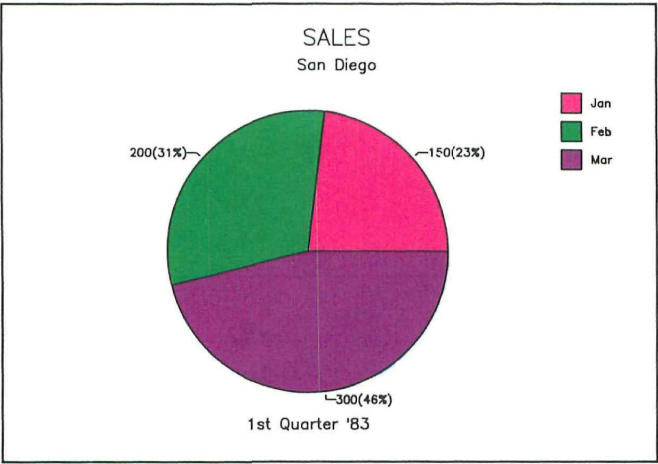


Illustration 5-5: Pie Graph

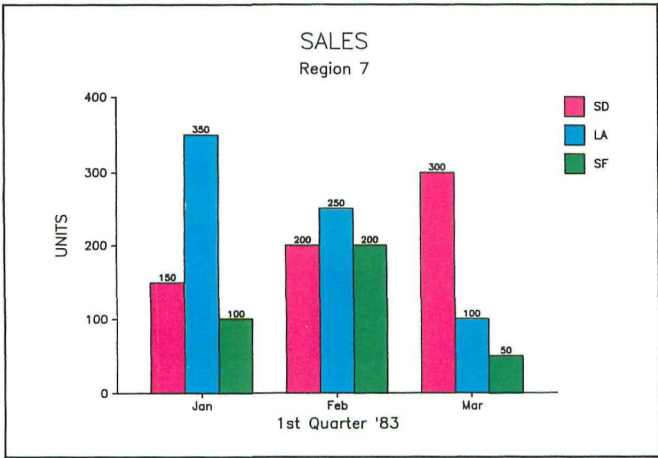


Illustration 5-6: Bar Graph

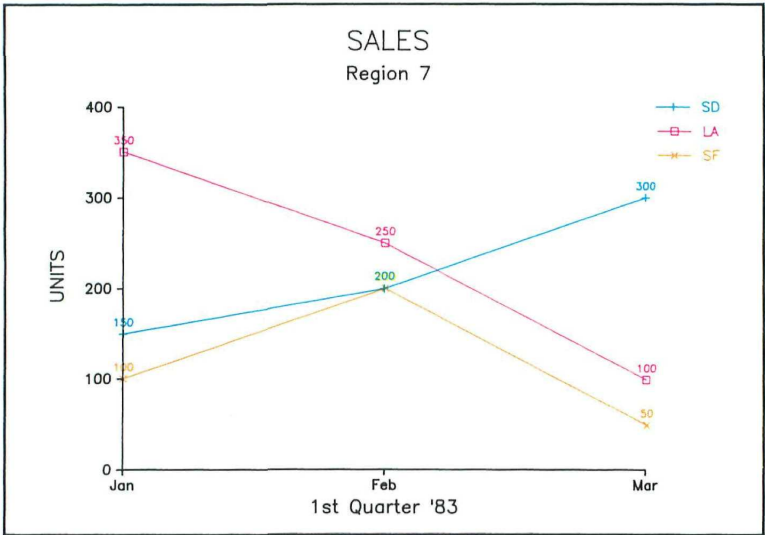


Illustration 5-7: Line Graph

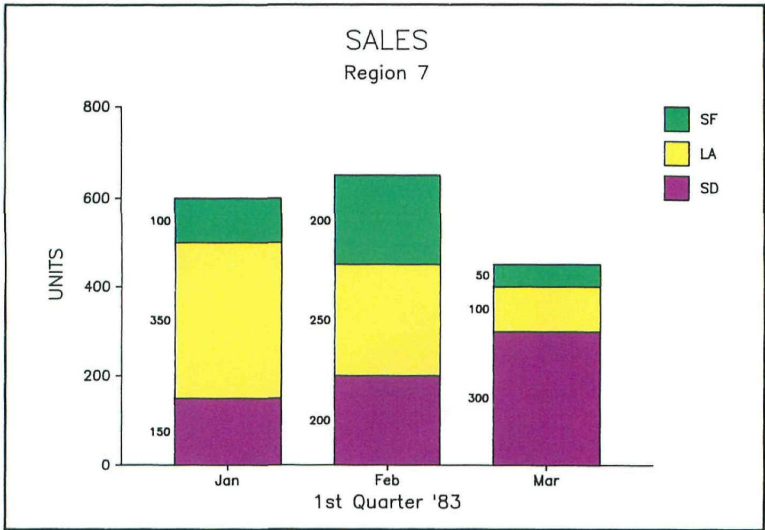


Illustration 5-8: Stacked-Bar Graph

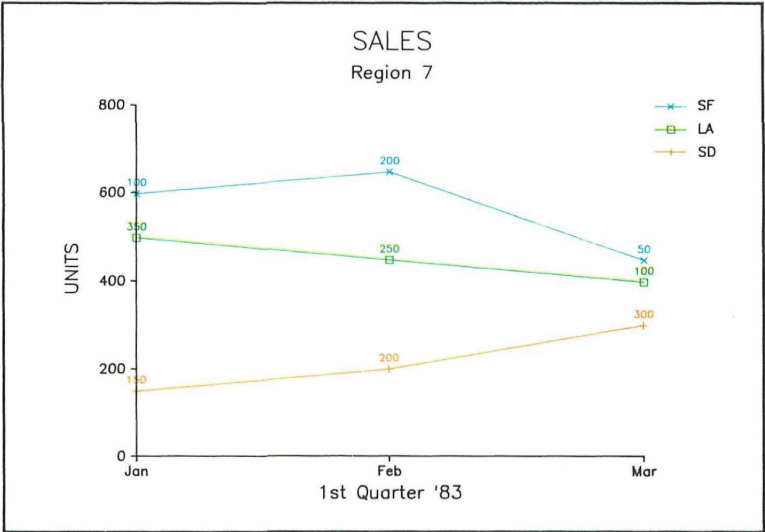


Illustration 5-9: Area Graph

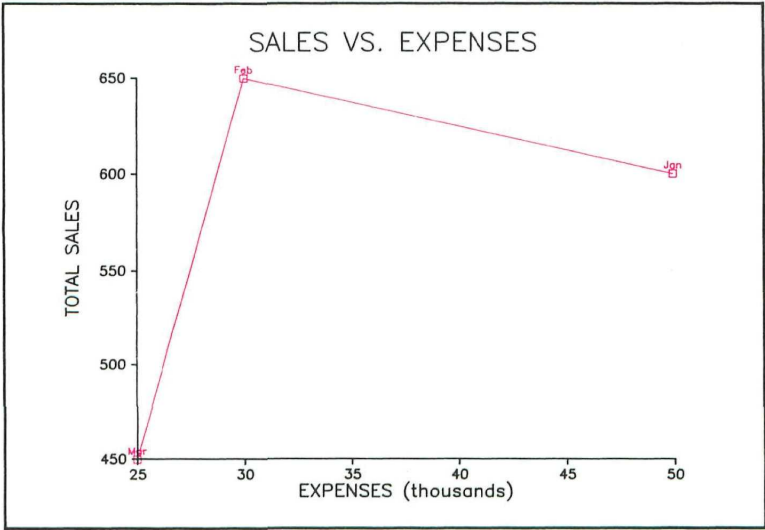


Illustration 5-10: X-Y Graph

You will also learn how to do the following:

- Change the components of your graphs.
- Save up to nine graphs with any spreadsheet.
- Print or plot your graphs.

Hi-Lo Graphs

The seventh type of graph you can build with the View command is a Hi-Lo graph. A Hi-Lo graph is often used to plot data such as high, low, opening, and closing prices for securities or commodities:

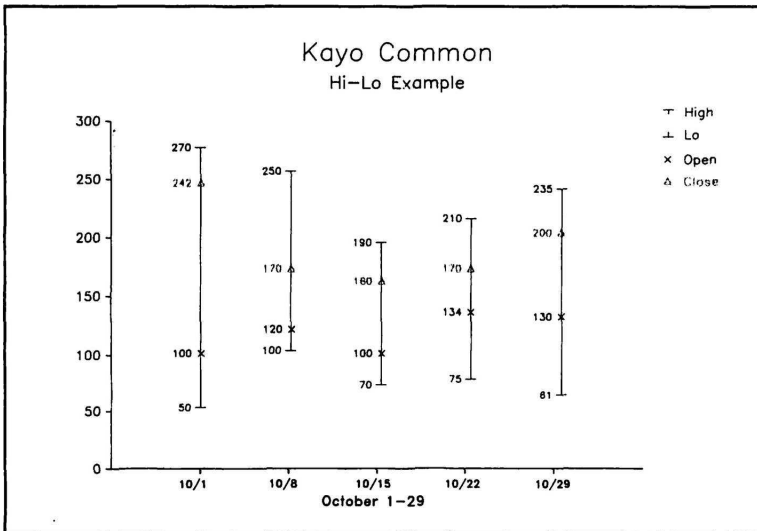


Illustration 5-11: Hi-Lo Graph

The Hi-Lo graph, and each of the other types of graphs are described in the /View section of Chapter 3.

Introduction to Graphing

- Once you learn to build one type of graph (or "chart" if you prefer) you will know how to build them all. You follow the same general procedures to build each graph.
- As with all other SuperCalc3 commands and options, whenever you have a question just ask the AnswerScreen.
- All the basic design decisions are built into the program. You don't have to be an experienced graphic artist or designer. Even so, the program gives you plenty of opportunity to add your own finishing touches.
- Some of the graphics options available in SuperCalc3 are shown in the bar graph below, including three of the eight selectable typestyles (fonts), horizontal grid lines, and user-selected plotting colors:

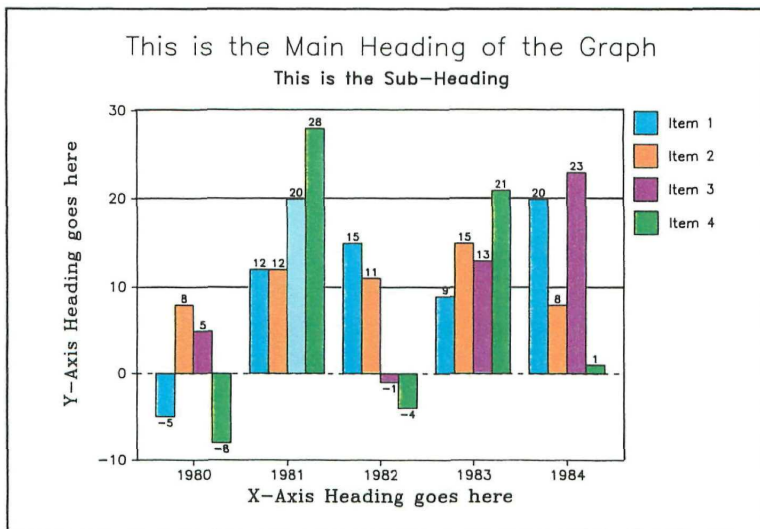


Illustration 5-12: Bar Graph With Enhanced Appearance Options

You Begin With a Spreadsheet

- To start this lesson, take a minute to produce the simple spreadsheet below. We'll expand it a bit as we go. "SD" means San Diego.

All the graphs you build with SuperCalc3 are based on data from a spreadsheet.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	SALES												
2		Jan	Feb	Mar									
3		150	200	300									
4	SD												
5													

Screen 5-45: Sales Report Spreadsheet

After you entered the text in row 3, did you change the format to Text Right, as shown. Remember how to make the entry?

- Enter **/Format,Row,3,TextRight, [RETURN]**

Building a Graph Description

As you type each entry, be sure to read the selections displayed on the prompt line. The meaning of each new selection will become clear as we go through the basic procedures.

Don't worry about making a mistake. You can make corrections with typeovers or deletions, the same way you make them with other spreadsheet commands. Even after you save a graph with its associated spreadsheet, you can use the Blank command to erase the graph description.

The View Command

To begin, enter the View command:

► Type **/View**

You see a prompt that includes several abbreviations, such as “Labs” for Labels, and “Opts” for Options (a set of optional adjustments you can make to your graph descriptions).



```
#,?,D(ata),G(raph-Type),T(ime-Labs),V(ar-Labs),P(oint-Labs),H(eads) or O(pts)?
```

The “#” symbol on the prompt line is an abbreviation for graph number. You don’t need to enter a graph number at this point. Graph number 1 will be entered by the program. You can save up to nine graphs, numbered from 1 to 9, with each spreadsheet. The “?” displays a summary of any current graph description.

The other selections in the main View prompt comprise the components of a graph description: Data, Graph-Type, Labels, Headings, and Options. Three different kinds of labels are listed in the main View prompt, along with each of the other components.

Our first objective is to build a simple bar graph. You build a graph by selecting a component from the main View prompt, then defining that component as shown below. The components can be selected and defined in any order.

5

C H A P T E R

LEARNING TO USE SUPERCALC3

Data:

This entry defines the length of each bar as the values in B5:D5 (150, 200, 300).

- ▶ Enter **Data,B5:D5 [RETURN]**

Data is the only component you need in order to view or plot the main features of a graph — in this case, the scale and the bars. A graph is generally not complete, however, until you add some headings and labels.

Headings:

For now, we'll just define the Main Heading. The text we will use is in cell A1 (SALES), although we could have used text in any cell on the spreadsheet. When you produce your own graphs you might want to make the Main Heading more specific. The Main Heading of the graph is used to identify that graph in the SuperCalc3 directory, and the text in cell A1 identifies the spreadsheet file.

- ▶ Enter **Headings,Main,A1 [RETURN]**
- ▶ Press **[RETURN]** again to return to the main View prompt.

Labels:

Time-Labels are the only labels we'll define for our first look at the graph. These are the labels that appear at the base of the bar graph. The range you enter defines the text for the Time-Labels (Jan, Feb, Mar).

- ▶ Enter **Time-Labels,B3:D3 [RETURN]**

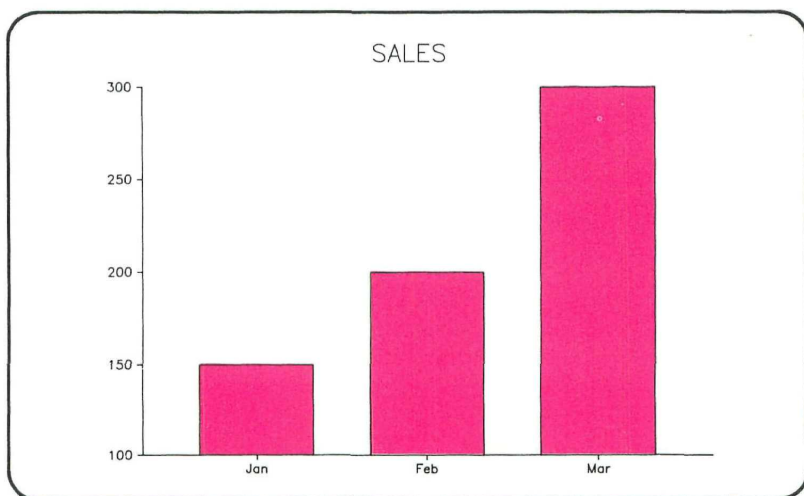
Graph-type:

Bar graph is the default for SuperCalc3, but let's enter the graph-type for practice:

- ▶ Enter **Graph,Bar**

If your copy of the SuperCalc3 /GRAPH disk is not already on-line, put that disk in one of your drives. If you have a single floppy drive system, it's okay to replace the /PROGRAM disk with the /GRAPH disk when you view or plot a graph. Then replace /GRAPH with /PROGRAM before pressing any key to return to the spreadsheet.

- ▶ Now press **[RETURN]** and watch what happens.



Screen 5-46: Simple Bar Graph

You saw your bar graph as it was being drawn on your console screen.

That's All There Is To It

That covers the general procedures for building any type of graph. You just define the four basic components any way you wish. We told you it was easy.

Your Graph Might Look Different

Your graph looks different than our illustration, depending on the type of monitor you have, and whether the program Monitor Display option is set to Black & White (the program default) or Color.

The illustrations in this manual show graphs as they look when plotted in color on a plotting device. Your graph also looks different if any of the other graph-related default settings have been changed. For example, the default fill pattern for the bars can be changed from solid to crosshatched, or simply outlined for fastest viewing and plotting. These changes can be made with the Global,Graphics command at the Options menu.

Note that a monochrome monitor displays bar and pie graphs with a crosshatched fill type, even if the Options menu is set to Solid.

Plotters and Printers Show More Detail

It's important to know that a Color setting either suppresses graph labels, or compresses graphs and truncates graph labels on your monitor, but not at your plotter or printer (depending on the Color labels setting, described in the Global,Graphics,Options section of Chapter 3). In color, the appearance of a full-featured graph on-screen just approximates the look of the graph when plotted with your plotting device.

As a general rule, even if you use the default Black & White setting, keep headings and labels as short as possible.

A Good Idea

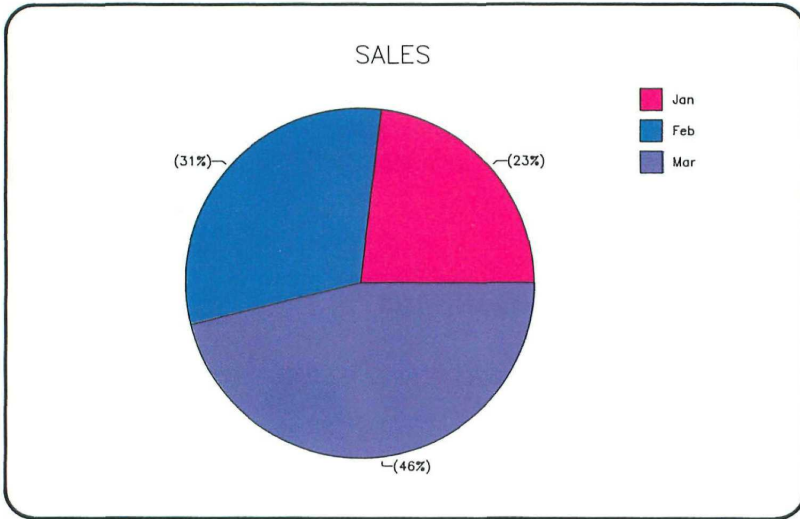
Now that you've gone through the basics, you can probably figure out how to change the graph components and do just about everything else with the View command. You'll pick up a few pointers, though, and learn about plotting and some of the advanced graphing features, if you take the time to complete this lesson.

Changing a Graph Description

We'll soon be adding more data to the spreadsheet. Then we'll add more headings and labels.

First, let's see how easy it is to see the same data in a different way. You need the /PROGRAM disk in one of your disk drives.

- ▶ Press **[RETURN]** or any other key to return to the spreadsheet.
- ▶ Enter **/V** (for /View)
 - G** (for Graph-Type)
 - P** (for Pie graph)
 - [RETURN]** (to view the pie graph)



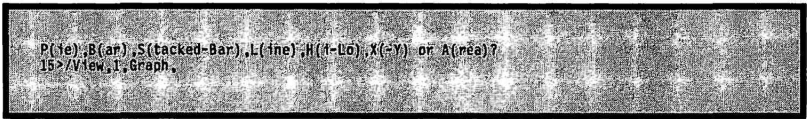
Screen 5-47: Monthly Sales Pie Graph

If the /GRAPH disk was on-line before you pressed [RETURN], you see your pie graph on-screen, looking something like our picture (if /GRAPH was not on-line, the program reminded you).

There's your pie graph on-screen, looking something like our picture.

- ▶ Now press any key to return to the spreadsheet (if your /PROGRAM disk was not on-line, the program reminded you to put it in a drive, so we'll stop reminding you).
- ▶ Enter **/VG** (for /View and Graph-Type).

Take a close look at the prompt and entry lines.



```
P(ie),B(ar),S(tacked-Bar),L(ine),H(1-L6),X(-Y) or A(rea)?  
16>/View,1,Graph.
```

The number "1" following /View on the entry line is the graph number entered by the program. The program is letting you know that graph 1 is the last accessed (current) graph. Any changes or additions you make at this point will modify the current graph description only.

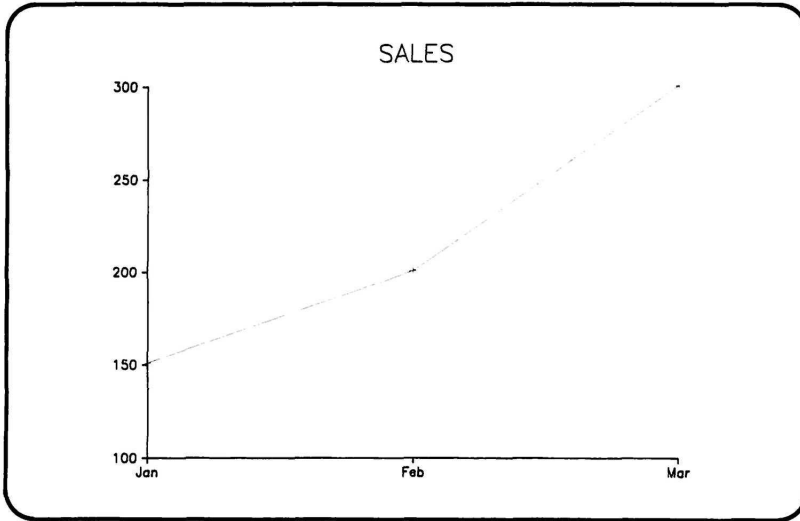
► Now type **L** (for Line graph).

At this point the program knows you want to see a line graph of your data, but it's giving you an opportunity to add more Headings, Labels, or Options.

You can also change any component you've already defined, or you can clear the View command and modify your spreadsheet.

► Press **[RETURN]** to view your data as a line graph.

Another way to view any current graph is to press **[Apple 0]**. This is handy when you are defining headings, for example, and want a quick check of your graph appearance without clearing the Headings selection. **[Apple 0]** does not function if the current entry is text or numeric data.

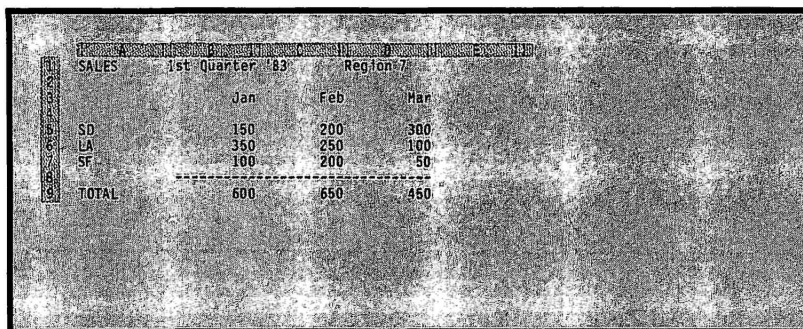


Screen 5-48: Monthly Sales Line Graph

Adding More Headings

Still looking at your line graph? Good. As you can see, the graph has a set of scale values, entered automatically by the program, but what do the numbers mean? The vertical scale, called a Y-axis, needs a heading. To add an appropriate Y-axis Heading, along with some other headings, you need to fill-out the spreadsheet.

- ▶ Press any key to return to the spreadsheet.
- ▶ Add more text and numeric values to the spreadsheet, as shown below. The two new sales districts are LA for Los Angeles, and SF for San Francisco.



Expanded Sales Report				
SALES	1st Quarter '83		Region	
	Jan	Feb	Mar	
SD	150	200	300	
LA	350	250	100	
SF	100	200	50	

TOTAL	600	650	450	

Screen 5-49: Expanded Sales Report

There's the spreadsheet, but suppose you want to define the scale with the word **UNITS**? Where can you put that word on the spreadsheet? No problem. Just use any cell below the Sales report.

- GoTo cell A15 and enter **UNITS**

Now define the Y-Axis Heading by telling the program to use the word in cell A15.

- Enter **/View,Headings,Y-axis,A15 [RETURN]**

While you're entering headings, add an X-axis Heading for the Time-Labels. The X-axis is the base line.

Your entry line already contains these entries: **/View,1,Headings,**

- To complete the entry, enter **X-axis,B1 [RETURN]**

5

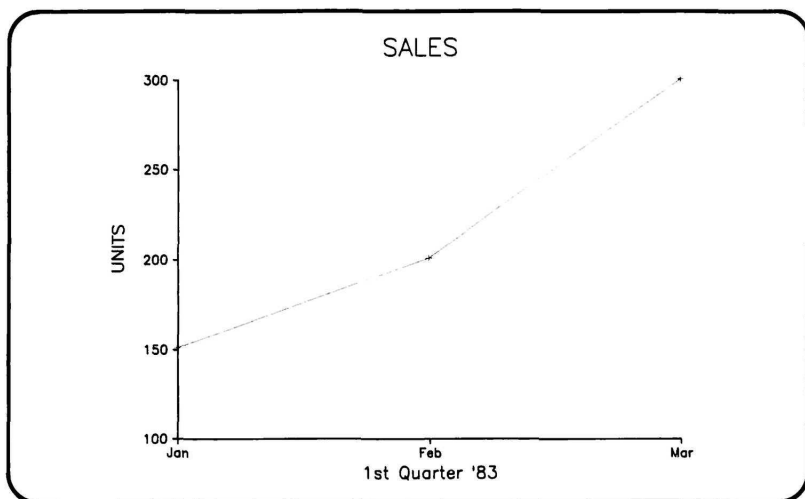
CHAPTER

LEARNING TO USE SUPERCALC3

Cell B1 contains "1st Quarter '83," which spilled over into cell C1. That's okay. The text is considered to be in cell B1 where you entered it.

Let's look at your handiwork so far.

- Press **[Apple 0]** (or press **[RETURN]** to return to the main View prompt, then press **[RETURN]** again).



Screen 5-50: Sales Report Line Graph

On your own, if you wish, view your work as a pie graph, and then as a bar graph.

To define a Sub-Head for the next graph you will view:

- Enter **/View,Headings,Sub,D1 [RETURN]**

Adding Data Variables

So far we have used the values in just one row for Data: the unit sales figures for San Diego (SD) in row 5 of our spreadsheet.

In graph-building jargon, each row range or column range you define is called a "Variable."

The first ten Variables are identified by the letters A through J. You can define each row or column range (for Variables A - J) individually, or you can define up to 254 Variables as a block range.

A pie, simple bar, or single line graph can be built with a single Variable, as you have seen. The other types of graphs in SuperCalc3 require two or more Variables.

To add more Variables to your graph description, you need to re-define the component called Data.

- Press **[Apple 2]** to clear the entry line.
- Enter **/View,1,Data**

Take a close look at the prompt line:

```
Var. A: Enter range (now B5:D5), < space> to skip, < -> to clear  
14>/View,1,Data,
```

5

CHAPTER

LEARNING TO USE SUPERCALC3

There are two ways to add the unit sales figures for Los Angeles (LA) and San Francisco (SF) to the graph description. For practice, let's try both methods.

METHOD 1 — Entering Variables by Column or Row:

- ▶ Press [**Spacebar**] to skip Variable A, as indicated on the prompt line — you've already defined Variable A, as you can see.

Notice that the prompt line has changed to "Var B". (The "< - >" to clear" message means you can erase the Variable data by pressing the minus key.)

- ▶ Enter **B6:D6** then press the comma key (,)

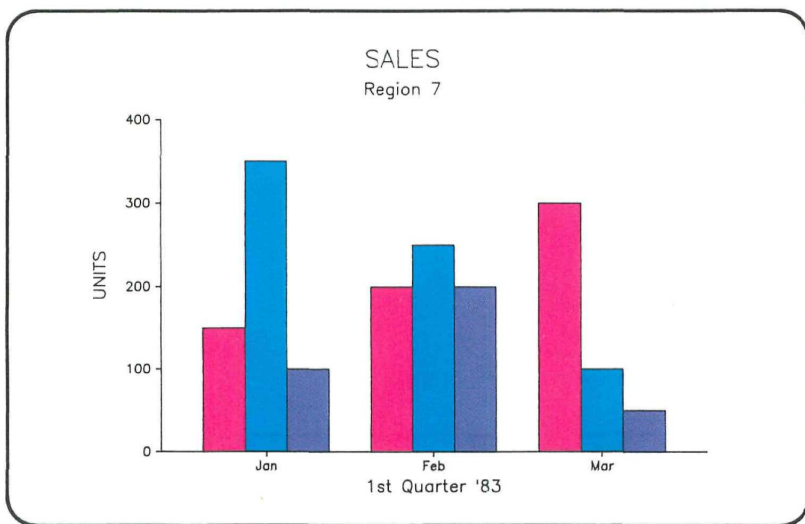
Variable B, the LA sales data, is now entered into your graph description. The prompt line is ready for a definition of "Var C."

- ▶ Enter **B7:D7**, the SF sales data, then press [**RETURN**] to end your Data Variable entries.

You should see the main View prompt, and "/View," on the entry line.

- ▶ Enter **Graph,Bar**
- ▶ Press [**RETURN**] to view the graph.

You see your expanded bar graph on the console screen. Each set of three bars represents the monthly unit sales in each of our three cities.

**Screen 5-51: Sales Report Bar Graph**

As you can see, there's something missing. Each bar is one element of a Data Variable representing a city, but there are no labels to identify each bar pattern or color. We'll add the missing labels in a minute. First, let's finish our lesson on Data Variables.

METHOD 2 — Entering Variables as a Block:

Now that you know how to define Data Variables one range at a time, we'll show you how to define the same three Variables with a single command line.

- Press any key to return to the spreadsheet.

5

CHAPTER

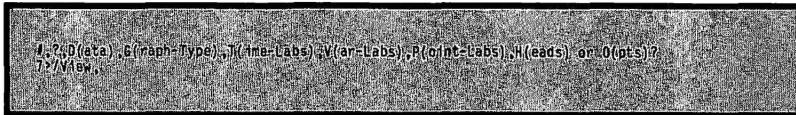
LEARNING TO USE SUPERCALC3

Because the numeric data in rows 5, 6, and 7 forms a block, you can enter the block range rather than entering each row range. Whenever the row or column ranges you intend to use for Variables form a block, you can enter a block range (including up to 254 rows). This block method for entering Variables is a real time-saver.

- Enter **/View,1,Data,B5:D7 [RETURN]**

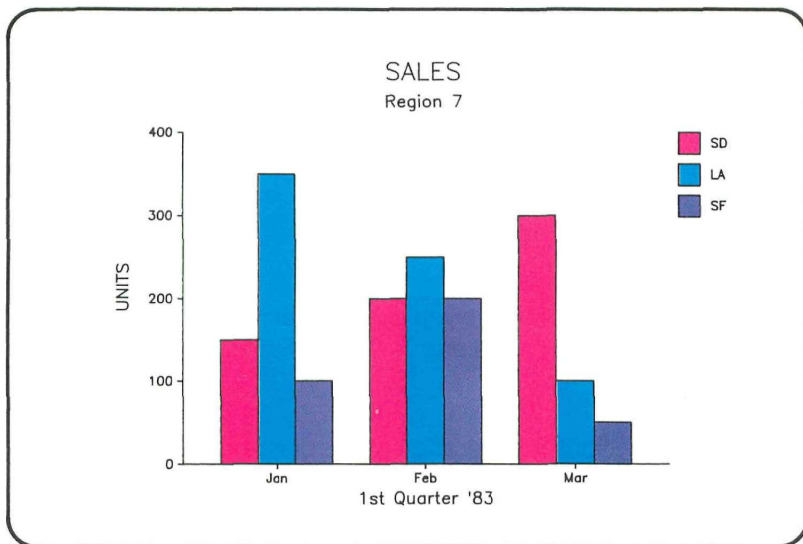
Adding More Labels

Let's take another look at the main View prompt:



We've defined a range for Time-Labels, now we need a label to identify the patterns or colors in each bar. As you know, each bar represents a Variable, so we'll use the Variable-Labels. Following "/View,1," on the entry line:

- Enter **Variable-Labels,A5:A7 [RETURN]**
- Press **[RETURN]** again to view the bar graph.



Screen 5-52: Bar Graph With Variable-Labels

The Variable-Labels tell you the meaning of the color or pattern in each bar. In a line graph the Variable-Labels define each line. Now add some Point-Labels:

- ▶ Press **[RETURN]** to return to the spreadsheet.
- ▶ Enter **/View,1,Point-Labels,B5:D7 [RETURN]**

The range B5:D7 is the same block range you entered to define the Data Variables (in Method 2).

- ▶ Press **[RETURN]** to view the bar graph with Point-Labels.

Global Graphics Menus

Before moving on, take a brief look at the Global,Graphics prompt line:

- ▶ Press any key to display the spreadsheet.
- ▶ Enter **/Global,Graphics**

You see a set of options that give you an opportunity to alter the appearance of any graph, including its Colors, Fonts (typesstyles), and Layout.

You make the alterations by selecting options or changing the current settings at full-screen menu displays. Each menu is described in the Global,Graphics section of Chapter 3.

- ▶ Don't change any settings, but take a minute to look at the Colors, Fonts, Layout, and Options menus by selecting each, in turn, at the Global,Graphics prompt.

At first glance, the meaning of each option on the menus might not be clear. After you complete this lesson, when you have time to experiment with changing some menu settings (the best way to see what they do is to try them with some practice graphs), scan the section on Global,Graphics in Chapter 3, then change some Color assignments, or add some Grid lines to a Bar or Line graph. Have some fun with the graph appearance changes as you master them.

Note that changes at the Colors and Options menus alter the look of the graphs on-screen and on your plotting device. Changes at the Fonts and Layout menu alter the graph at the plotting device only.

The Global,Keep option can be used to save any changed setting from any of the Global,Graphics menus, as well as hardware-related items at the the Global,Interface menu. For now, though, leave each of the default settings as is.

The View (?) Help Screen

Let's say you were called away from your lesson for awhile, and now you can't recall which options you selected for the current graph. Here's an easy way to see what you entered:

- ▶ If the graph is still on-screen, press any key.
- ▶ Type **/View,(?)**

You see a summary of the current graph description. Press **(?)** again if you want to see the **/View AnswerScreen**. To see a summary of a different graph description, you would type **/View**, then the graph number, then **(?)**. At this point, of course, you have only defined graph number 1.

The Completed Line and Stacked-Bar Graphs

Now view the completed graph description as a line graph, then a stacked- bar graph.

Here are your entries:

- ▶ Press **[Apple 2]**.
- ▶ Then at the main View prompt type **Graph,Line [RETURN]**

5

C H A P T E R

LEARNING TO USE SUPERCALC3

The line graph shows the sales trend for each city from month-to-month.

- ▶ Press any key, then type **/View,1,Graph,Stacked-Bar [RETURN]**

Each section of each bar represents one element of one Variable (sales for one month in one city). An entire bar represents one element from three Variables (sales for one month in three cities). The elements are stacked, rather than side-by-side, as in a bar graph.

The Completed Area Graph

- ▶ On your own, view Graph Number 1 as an area graph.

An area graph conveys the same information as a stacked-bar graph, but presents it in the form of a stacked-line graph.

A Note About Pie Graphs and X-Y Graphs:

- A pie graph, at this point, would be defined by the View command with the data in Variable A. You can select any Variable, or even one element from each Variable, with the Pie-Mode option in /View. We'll skip that feature for now, but we wanted you to know about it.
- An X-Y graph requires additional data. We'll add the data for an X-Y graph later in this lesson.

Plotting Your Graphs

- If you are still looking at the area graph, press any key to return to the spreadsheet.

Any of the plotters or graphics printers supported by SuperCalc3 can be used to plot your graphs.

- To plot the current (last viewed or accessed) graph, press **[Apple 9]**.

If you have a graphics printer, plotting should begin immediately.

If you have a pen plotter, the program prompts you to insert the pen colors of your choice. Respond to each prompt during the plotting process. Change the pen colors as often as you wish, or plot without any pen changes by pressing any key. Pen color 0 is used for headings and some labels. Color 1 is used for Variable A, color 2 for Variable B, and so on through color 10 for Variable J (these default color assignments can be changed at the Global,Graphics,Color menu).

Note:

If you want to stop the plotter while plotting is in progress, press **[Control Z]**. Plotting cannot be continued from the point where the process was aborted.

If your plotter or printer did not produce satisfactory results, perhaps the device selection at the Global,Graphics,Device menu needs to be corrected. Another problem might be that the device settings at the Global,Interface menu need to be changed to match the switch settings on your printer or plotter. Change whatever settings might be necessary. See Chapter 3 for details.

5

C H A P T E R

LEARNING TO USE SUPERCALC3

Once you start using your plotter for graphing with View, you will probably want to play with it awhile. We can't blame you. Come back when you are ready to learn about the last of our graphs for this lesson, the X-Y (or "scatter-plot") graph.

Building an X-Y Graph

We will build the simple X-Y graph pictured near the beginning of this lesson. Flip back and take a look at it.

The Time-Labels have been replaced by an X-axis scale. The purpose of an X-Y graph is to correlate one set of values with one or more different sets of values.

Let's see what kind of correlation we have between sales per month and expenses. You'll have to add some expense figures to your spreadsheet, as well as some text entries for new headings:

- On row 11 of your Sales report, make these entries:

10	Sales vs. Expenses			
11	EXP, \$000	50	30	25

Screen 5-53: Expanding the Report

For the Main Heading:

- In cell A16, enter **SALES VS. EXPENSES**

For the X-axis and Y-axis Headings:

- ▶ In cell A17, enter **EXPENSES (thousands)**
- ▶ In cell A18, enter **TOTAL SALES**

To build a separate graph description for the X-Y graph, enter the number 2 after the /V entry, as shown below. If you don't, the program will assume you're revising graph number 1.

- ▶ Enter **/View,2,Graph,X-Y**
- ▶ Enter **Data,B11:D11**, for Variable A.

You are correlating, or pairing, the values in the sales "TOTAL" row with those in the "Exp \$000" row. You now see the Data prompt for Variable B because you ended your last entry line with a comma, not a **[RETURN]**.

- ▶ Enter **B9:D9 [RETURN]**

Now enter a Main Heading, and X-axis and Y-axis Headings:

- ▶ Enter **Headings,Main,A16**,
- ▶ Enter **X-axis,A17**, then enter **Y-axis,A18 [RETURN]**

To label each X-Y point marker, define the Point-Labels:

- ▶ Press **[RETURN]**, then enter **Point-Labels**, and press **[Spacebar]** for Variable B.

On an X-Y graph, Variables B through J can be used to define the Point-Labels. In our example, Variable B is the only assigned Variable for Point-Labels.

- Type **B3:D3 [RETURN]** for Variable B Point-Labels.
- Press **[RETURN]** again to view the X-Y graph.

This X-Y graph is a very simple example because you don't have much data on the spreadsheet — but it illustrates the way paired values are correlated.

Here's another example of an X-Y graph showing the correlation among paired values for product turnover and profit margins.

The three-letter abbreviations defining each point on this graph are product codes. The product codes could just as easily have been numbers. Note that product codes **LIG**, **VIL**, **NAD** and **WOH** are positioned above an invisible diagonal line from the upper-left to the lower-right corners of the graph. Those are the products with the best combined turnover and profit margin: The star performers.

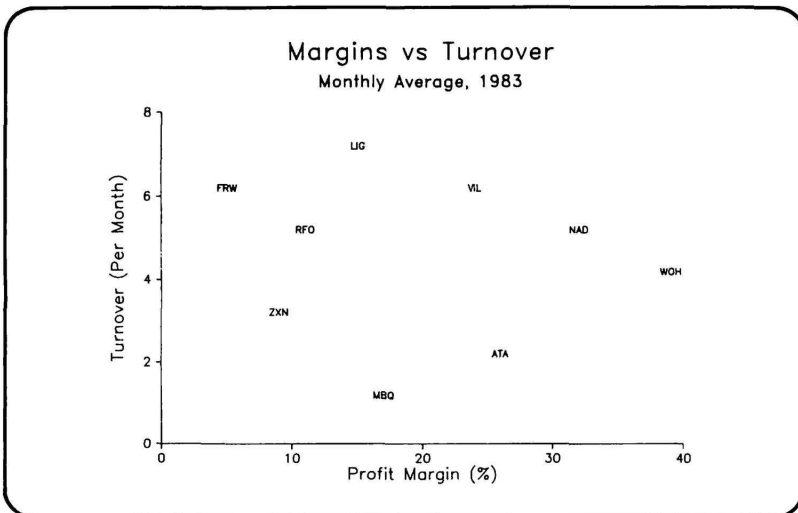


Illustration 5-13: Margins Vs. Turnover X-Y Graph

Saving Your Graphs

All the assigned View graph descriptions are saved automatically when you save the associated spreadsheet. You may want to practice building and revising other graphs with the current spreadsheet, so save it on your /DATA disk.

► /Save,/DATA/LESSON7,All

View Options

There are a number of graph-enhancing features in /View,Options we haven't used in this lesson, such as label format changes and pie explosions. Try them on your own, referring to the AnswerScreen when you have a question. See Chapter 3 when you need more detailed information.

Related Commands

With SuperCalc3 you can also copy a graph description with the Copy command, and blank it with the Blank command. You can even load graph descriptions from one spreadsheet into another with the Load command. You can also change appearance features and select other graph-related options with the Global,Graphics command, and change device settings at the Global, Interface menu, as mentioned in this lesson. Use Global Keep to save the modifications as SuperCalc3 defaults.

5

CHAPTER

LEARNING TO USE SUPERCALC3

As usual, the program prompts will guide you through each procedure. The AnswerScreens provide any extra help you might need, or you can refer to the sections on Copy, Blank, Load, and Global in Chapter 3 for more details.

What You Have Learned In This Lesson:

- How to build six types of graphs with the View command — Pie, Line, Bar, Stacked-Bar, Area, and X-Y — to transform a spreadsheet into a dramatic visual format.
- How to change a graph description, and save up to nine graph descriptions with any spreadsheet.
- How to plot your graphs on a plotter or graphics printer.
- How to change Global, Graphics and Global, Interface settings and save the new settings as program defaults.

Lesson 8

Advanced Features

This lesson looks at some of the most powerful, advanced features of SuperCalc3:

- Calculation options
- Calendar functions
- Lookup function
- Arrange command

Calculation Options

All calculation options are set using the *Global* command. Let's take a look at some of the possibilities in calculations.

Calculation Order

You've seen that when you enter a new spreadsheet value, the program automatically recalculates all the formulas. Initially SuperCalc3 recalculates cells in row order. You can change that order to calculate down columns, if you wish, by using the *Global, Column* command.

Cumulative Totals

Use of the (!) command saves entry time when you construct cumulative totals. Let's see how this is done:

5

CHAPTER

LEARNING TO USE SUPERCALC3

- Zap your screen and Load the sample file PAYROLL.CAL from your working copy of the /GRAPH disk, or from your hard disk.

CONSOLIDATED MONTHLY PAYROLL: JULY						
Today's Date		7/17/1984	Deduction Percentages			
Payroll Start Date		7/1/1984	Fica		6.700%	
Days this period		17	State		.8%	
Recalculate YTD?N						
Emp#	Employee	St	Gross Salary	Total Deduct	Net Pay	YTD Gross
34	Adams	M	\$1,100.00	(\$82.50)	\$1,017.50	\$6,200.00
15	Jacob	M	\$750.00	(\$56.25)	\$693.75	\$5,250.00
84	Johnson	S	\$1,200.00	(\$90.00)	\$1,110.00	\$5,950.00
92	Jones	M	\$900.00	(\$67.50)	\$832.50	\$6,300.00
12	Samson	S	\$560.00	(\$42.00)	\$518.00	\$3,920.00
19	Santos	M	\$650.00	(\$48.75)	\$601.25	\$4,550.00
46	Smith	S	\$700.00	(\$52.50)	\$647.50	\$4,900.00
Total # employees 7						
Totals in 100s:						
Gross Salaries			\$58.6			

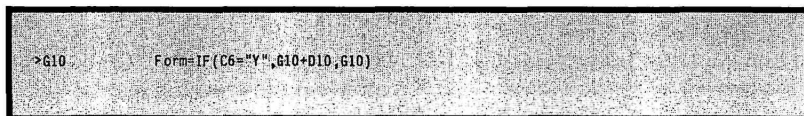
Screen 5-54: PAYROLL Spreadsheet

This spreadsheet can be used as a foundation for a payroll system and incorporates several interesting features. For now, let's focus on recalculation.

- To make sure *Global* is set to *Manual* for this exercise, enter /
Global,Manual.

The spreadsheet design allows you to enter payroll figures once, then by using a formula containing a cumulative total, initiate a recalculation at the end of each pay period. To view the formula:

- Enter **/Global,Formula**
- GoTo G10 and read the status line.



Recalculation Flag

When using the (!) command with a cumulative total you might have a problem forcing a recalculation once too often when you don't want it. To prevent this and control the update process, you can create a *recalculation flag* just as the creator of this sample spreadsheet did.

Note the "Y" in the IF functions in column G. For example, the formula in G10 means: If the content of C6 is "Y" then add the Gross Salary figure (D10) to the YTD Gross (G10), otherwise keep the current figure in G10 unchanged.

This formula lets you automatically update the YTD Gross at the end of each pay period. For example, if a salary changes, you can enter the change without updating the YTD Gross. When the next pay period ends, YTD Gross can be updated.

- GoTo cell A6, which reads: Recalculate YTD? ("N").

The text entry in A6 is the title for the recalculation flag. The flag itself is in C6.

- Move to C6 and read the status line:



Textual Values

The content of C6 is not regular text, rather it is a *Textual Value*. Textual Values are enclosed in double quotes and parentheses.

A Textual Value can be referenced from another cell with an IF function like the one used in Column G. Let's see how a Textual Value works as a calculation flag.

- ▶ Enter **/Global,Formula** to return to value display.
- ▶ Press **(I)**. Nothing happens.
- ▶ Now change the Gross Salary figure in cell D10 to \$1,500.00 (enter **1500**).
- ▶ Press **(I)**.

The Total Deduct and Net Pay are automatically updated, but the YTD Gross remains unchanged.

- ▶ *GoTo* C6 and use the *Edit* command to change the ("N") to a ("Y"). Make sure the "Y" is capitalized.
- ▶ Press **(I)** and watch the YTD update in cells G10 to G16.
- ▶ Return to C6 and change the ("Y") back to ("N"). This protects the YTD total from further update.

Note:

The recalculation flag must be above and to the left of the IF statement in order to avoid a forward reference.




Calendar Functions

Now let's look at how to use the SuperCalc3 Calendar. The program's calendar contains dates from March 1, 1900 to February 28, 2100. It numbers the days within this 200 year range from 1 through 73049. Once you enter a date in the proper format, SuperCalc3 can reference it in a formula from another cell, for example, to add or subtract from that date.

- ▶ Use **/Global,Formula** to switch back to formula display.
- ▶ Look at the formula in D5: D3-D4 + 1.

This formula references calendar dates in cells D3 and D4.

- 
- ▶ Look at the formula in E1: LOOKUP(MONTH(D4),A25:A36)
 - ▶ MONTH(D4) looks at the Date in D4 and returns the number of the month, in this sample, 7.
 - ▶ LOOKUP looks for the value 7 in cell range A25:A36.

For more examples of calendar function entries, see Chapter 4.

Lookup Tables

- ▶ Go to A25 to see the range specified in the Lookup function.
- 

CONSOLIDATED MONTHLY PAYROLL: LOOKUP(MONTH(D4),A25:A36)						
Today's Date		DATE(7,17,84)		Deduction Percentages		
Payroll Start Date		DATE(7,1,84)		Fica	0.0670	
Days this period		D3-D4+1		State	0.008	
Recalculate YTD? ("N")						
Emp#	Employee	St	Gross Salary	Total Deduct	Net Pay	YTD Gross
25	1	("JANUARY")				
26	2	("FEBRUARY")				
27	3	("MARCH")				
28	4	("APRIL")				
29	5	("MAY")				
30	6	("JUNE")				
31	7	("JULY")				
32	8	("AUGUST")				
33	9	("SEPTEMBER")				
34	10	("OCTOBER")				
35	11	("NOVEMBER")				

Screen 5-55: Sample Lockup Table in Formula Mode

Here SuperCalc3 looks down the range A25 to A36 for the 7 which it finds in A31. The program then looks for the value in the adjacent cell to the right. There it finds the textual value ("JULY"), which it returns to E1.

The information in the block from A25 to B36 was entered by the user. Such a table used as a reference for a LOOKUP function is called a Lookup table.

You might try an experiment by using DAY instead of MONTH in a formula, and build a Lookup table containing the days of the week.

Note:

Text Strings do not work in a Lookup table because a Text string has a value of zero. Use Textual Values instead. Textual values may contain 0-9 characters.

Now try the calendar functions yourself:

- ▶ At D3 enter the current date using one of these calendar functions:

- Enter **TODAY** to automatically get the current system date.

OR

- Enter the current date into D3 using the DATE function in the DATE(MM,DD,YY) format.
- ▶ Enter **/Global,Formula** to see the value display.
- ▶ Now edit D4 to the first day of the current month using the DATE function.
- ▶ Press **(!)** and watch two things happen: a new "Days this period" figure appears in D5 and the month name appears in E1.
- ▶ Press **[Apple H]** to go to cell A1.

Arrange Command

The **Arrange** function lets you rearrange a spreadsheet, sorting rows by a key column, or columns by a key row. Try it now by arranging the employees by employee number.

- ▶ Enter this command:

/Arrange,Column,A,10:16,Ascending,Y [RETURN]

Note that for this spreadsheet you must specify the exact range of rows, and specify an automatic formula adjustment.

5

C H A P T E R

LEARNING TO USE SUPERCALC3

SuperCalc3 also provides a secondary sort. For example, you could sort first by Status (M or S), then by Gross Salary in descending order.

► Enter: **/Arrange,Column,C,10:16,Ascending,Y,D,Descending**

Now return to the original arrangement by employee.

► Enter: **/Arrange,Column,B,10:16,Ascending,Y [RETURN]**

Tip: Before sorting rows of data on any spreadsheet, number each row so you can easily re-sort the data in the original order if you wish to do so. Numbering rows quickly: In column M (or any unused column), enter 1 in cell M1. Enter M1 + 1 in cell M2. Replicate the formula in M2 down the column (**/Replicate,M2,M3:M254**). If calculation is set to */Global,Manual* (as it is now), you must press ! to recalculate the values.

What have you learned in this lesson?

- What order of calculation means, and how to change it by using the *Global* command.
- That the (!) key initiates a recalculation.
- How to use a recalculation flag to protect a value from unwanted update with the (!) command.
- How to use the TODAY and DATE calendar functions for calculations.
- How to create a Lookup table using the MONTH calendar function.
- How a Textual Value can be used in a formula and Lookup table.
- How to use the *Arrange* command to sort a range of rows by a column, or a range of columns by a row.

Lesson 9

Data Management

The Data Management command provides the tools for a host of "Information Management" applications. Equally important, Data Management is fully compatible with all the spreadsheet and graphing commands and functions.

This lesson shows you how to use SuperCalc3 to manage the lists of data typically maintained by businesses and individuals.

Data Management operations make it easy to search through long and detailed lists for specific information, and to extract that information quickly.

Thousands of Facts and Figures at Your Fingertips

Here are a few examples of the kinds of lists you can manage with Data Management:

Price lists	Phone lists	Name & address lists
Personnel lists	Supplier lists	Customer/Client lists
Inventory lists	Parts lists	Rate tables
Job quote lists	Reference lists	Real Estate listings
Investment lists	Procurement lists	Advertising schedules
Prospect lists	Organization lists	Overtime schedules
Work schedules	Shipping schedules	Production schedules
Training schedules	Reservation lists	Daily/Weekly logs

The best way to learn to use the Data Management command is to try it. To begin, set up the simple database (a computer-accessible list) shown on the following page.

Creating a Database

For your database example, let's go into the auto rental business. You'll only need a small portion of what would typically be a much more extensive list of data.

- ▶ Using a blank spreadsheet, duplicate the entries shown in columns D through G on Auto Rentals Database Screen. Although the next two format changes are not required, they improve the readability of the data.
- ▶ Format column G for two decimal places with this entry:

/Format,Column,G,\$ [RETURN]

- ▶ Change the global format to Left numeric justification:

/Format,Global,Left [RETURN]

A	B	C	D	E	F	G
1	2	3	4	5	6	7
			RENTALS	YEAR	ON HAND	RATE/DAY
			Civic	84	8	36.00
			Civic	83	5	32.00
			Civic	83	3	30.00
			Corona	84	5	36.00

Screen 5-56: Auto Rentals Database

You now have a list of data, but it's not yet a functioning database.

- ▶ Type **//Data** (with two / marks), and look at the prompt line:

I(nput),C(riterion),O(utput),F(ind),E(xtract),S(elect),R(emain)?

To create a functioning database, you need to define one area of your spreadsheet as an Input block, and another as a Criterion block. You'll see why as you go through the practice exercises.

► Enter Input

You are prompted for an *Input range*. The *Input range* is the block containing the list you just typed into the spreadsheet. The *Input range* can include more rows than the current database requires, but we'll confine the block to the number of rows you entered. You can enter a range using either of two methods, as we pointed out in Lesson 3. For practice, try both methods:

- Press the **[Esc]** key, then use the **arrow keys** to return each cell address to the entry line. The range is **D1:G5** in our example. Remember to type a colon or period after the first address and press **[RETURN]** after the second address. The specified range is highlighted on your screen. Or...
- Enter **Input** again, then type **D1:G5 [RETURN]** (This is the way we show the range entries in this lesson, but you can use the **[Esc]** to *Point* function whenever it's more convenient than typing in the range designations.)

Note that the *Input block* can be placed anywhere on the spreadsheet, and the range can be redefined at any time. If you delete or insert any rows in an *Input block*, the *Input block range* adjusts automatically.

- *//Data* is still on the entry line, so enter **Criterion**

You are prompted for a *Criterion range*. You can redefine the range, or enter new criteria, at any time.

You'll need a block of four cells for the search criteria we will ask you to enter. We'll put the Criterion block in the upper-left corner of the spreadsheet, though we could have placed it anywhere.

- Type **A1:B2 [RETURN]**

When //Data is on the entry line, you can clear the entry by pressing the **[RETURN]** key, or **[Apple 2]**.

- Press **[RETURN]**

Searching a Database

To prepare for a search of the database, enter your search criteria in the Criterion block. Remember that a database often contains hundreds or thousands of separate items of information.

- To search the database for Civics renting for \$32 per day, enter the search criteria shown below (on the Entering Search Criteria Screen) in cells A1, A2, B1 and B2.

We refer to the text entries in the top row of any defined block (such as the Criterion block and the Input block) as field names. Field names can be entered using capital or small letters.

Here is the Criterion
block you defined.

Here is the Input block
(database) you defined.

CRITERION				INPUT			
RENTALS	RATE/DAY	RENTALS	YEAR	ON HAND	RATE/DAY		
Civtc	32	Civtc	84	5	36.00		
		Civtc	83	5	32.00		
		Colt	83	3	30.00		
		Corona	84	5	36.00		

Screen 5-57: Entering Search Criteria

Two things to remember about field names:

The top row of each defined block must be reserved for field names, even if a field name cell is left blank.

A field name in the Criterion block must be an exact copy of a matching field name in the Input block: For example, RENTALS (all capital letters) does not match rentals or Rentals.

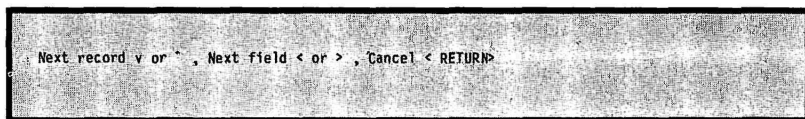
- Type **//Data,Find** and watch what happens.

The *Find* operation highlights the row of data that passed your criteria tests. Note that the entire Civic 83 record — the complete row of data — is highlighted (on most display terminals).

- Press the **[dn arrow]** key to see if any other record satisfies your criteria.

The message on the right end of the status line says “No more matching records.” That’s true: There are no more Civics renting for \$32.

Take a close look at the prompt line:



The prompt says you can use the up or down arrow key to move the highlight from record to record (that is, from row to row). It also says you can use the right or left arrow key to move from field to field. Each cell in a record is called a field.

- Press the **[rt arrow]** key three times. The spreadsheet cursor should now be in cell G3 (though the entire record is still highlighted).

5

C H A P T E R

LEARNING TO USE SUPERCALC3

- ▶ The prompt also says you can cancel the *Find* command by pressing the <RETURN> key, so press **[RETURN]**

The spreadsheet cursor is still at cell G3, but if you cancel the Data command by pressing **[RETURN]** again, the spreadsheet cursor returns to its former location (prior to entering the Data command). If you want the cursor to remain in cell G3 you can use the *Remain* option — you might want to revise or delete the data in cell G3. Using *Remain* is not required, but it can be a real time-saver when you work with large databases.

- ▶ Type **Remain** to hold the cursor at its current field (cell) location, and to clear the entry line.
- ▶ To see how fast and easy it is to change your search criteria, Go To cell A2 and change Civic to **Colt**.
- ▶ Type **//Data,Find** to highlight any Colt record that satisfies your criteria.

You see the message, "No matching record found."

- ▶ Press **[RETURN]** to clear the entry line, then blank cell B2 with the blank command: **/Blank,B2 [RETURN]**
- ▶ Try another *Find*: **//Data,Find**

You see the Colt record highlighted.

By blanking the criteria under RATE/DAY, your search criteria for that field becomes non-selective. In effect, you say "any RATE/DAY will do."

So far you have used three types of search criteria:

- An exact word match: Civic matched Civic; Colt matched Colt.
- An exact number match: 32 matched 32.00 (the difference in cell format had no effect on the values matched).
- A non-selective match: A blank criteria matched any value in the fields specified by the field name.

Formula Search Criteria

See 3.13 etc

You can also use any suitable formula as a search criteria.

- Clear the entry line (press **[Apple 2]**, or press **[RETURN]** twice).
- At cell B2 enter this formula: **G2 < 34** (< 34 means less than 34).

	RENTALS	RATE/DAY	RENTALS	YEAR	ON HAND	RATE/DAY
2	Colt	0	Civ1	8		36.00
			Civ1c	83	5	32.00
			Colt	83	3	30.00
			Corona	84	5	36.00

Screen 5-58: Formula Criteria

You see a 0 displayed at cell B2 because the value at G2 is 36, not less than 34 (If the value at G2 had been less than 34 you'd see a 1 displayed at B2). Your search criterion is not the value displayed at cell B2. The criterion is the formula you entered.

5

C H A P T E R

LEARNING TO USE SUPERCALC3

The formula search criterion you entered means, "Test each value in column G, starting at cell G2, to see if it is less than 34."

► Type **//Data,Find**

The Colt record is highlighted because the RATE/DAY is indeed less than 34, and the word match you specified is Colt.

It is important to remember these distinguishing features of formula criteria:

- The cell address included in your formula defines the field values to be tested. In the formula criterion just entered, G2 defines the values in column G as the only field values to be tested. The RATE/DAY field name in your Criterion block is not required with Formula criteria, but it's okay to leave it in place.
- A search operation, such as *[LR]"Find"*, automatically adjusts the formula cell address as it searches each record.

Enlarging a Criterion Block

- Clear the entry line, then at cell C1 enter **YEAR**
- At cell C2 enter **83**

- At cell A2, replace Colt with **C*** (that is, enter **C** and an asterisk). We'll explain what this entry means in a minute.

Your Criterion block should look like this:

RENTALS	RATE/DAY	YEAR
C*	0	83

- Type **//Data,Criterion**, then look at the prompt line.

The prompt says "Criterion range (now A1:B2)." It also says "< - > to clear," but you don't need to clear the current range with the minus sign. The new range you enter will clear the current range.

Note that the Criterion block range must indicate the exact number of rows in the Criterion block — in this case rows 1 and 2. A blank row, meaning "any data," should not be included.

- Type **A1:C2 [RETURN]** so your new criteria are included in the Criterion block.
- **//Data** is still on the entry line, so try a **Find**.

The Civic 83 record is highlighted.

- Press the **[dn arrow]** for the next record that satisfies your criteria:

The Colt 83 record is highlighted.

The "C*" you entered at cell A2 means the capital letter C followed by any other characters. Any word in a RENTALS field beginning with the letter C would pass that test.

An asterisk (*) is a “wildcard” symbol you will probably use regularly to minimize keystrokes. For example, to search a name and address list database, you might enter the criterion “Th*” to find (or extract) the records for everyone whose last name begins with the letters “Th”.

The other wildcard symbols you can use in text criteria entries are described in the section on *Data Management* in Chapter 3.

Extracting and Selecting Data

To extract data from your database — that is, to copy data to another part of the spreadsheet — you need to enter field names indicating the data you want extracted, and you need to define an Output block to contain the extracted data.

- Clear the entry line, then at cell A6 enter **YEAR**. At cell B6 enter **RENTALS**. At cell C6 enter **ON HAND**.

Cells A6, B6, and C6 now comprise the top row of your intended Output block. The text you just entered are the field names indicating the kind of data you want to extract, and the order in which you want to extract it.

- Type **//Data,Output**

You are prompted for an Output range.

You know the Output block needs to be three cells wide, but how many rows should it have?

Your sample database contains a row of field names and five records, so the Output block range needs to be no more than six rows. Let's say we plan to increase the size of the database to at least 100 records (we won't actually do that), so we may as well define the Output block with 101 rows.

- Type **A6:C107 [RETURN]**

Note that you can change the Output block size at any time, and place it anywhere on the spreadsheet — as long as it doesn't overlap the Input or Criterion blocks.

- Type **E**xtract

Your Output block should look like this:

YEAR	RENTALS	ON HAND
83	Civic	5
83	Colt	3

The field names you entered.
The data extracted by the
Extract operation.

Now let's see what *Select* does.

- Type **S**elect, then notice these changes on your screen:

The Output block is cleared and the Civic 83 record is highlighted, as with *Find*, but the prompt line says "Extract? Y(es) or N(o)." The prompt also says you can move the spreadsheet cursor with the right and left arrow keys (very handy if you want to scroll to offscreen data fields).

- Type **Y** (for Yes), and notice the data copied to the Output block. The Colt 83 record is highlighted, so type Y again.

The *Select* operation gives you a chance to extract specified data, or skip a highlighted record by typing N instead of Y.

5

C H A P T E R

LEARNING TO USE SUPERCALC3

Let's say you have the extracted list the way you want it. At this point you have several choices:

- You could print the extracted data with the *Output* command.
- You could *Output the Display to Disk* if you want to include the extracted data in a letter or report.
- You could save the extracted data in the Output block as a separate spreadsheet file.

Instead of doing any of those things, enter a different formula for more practice:

- ▶ Clear the entry line and Go To B2. Type **G2 >= 36 [RETURN]**.
(>= 36 means greater than or equal to 36.)
- ▶ At C2 enter **84**
- ▶ Type **//Data,Extract**

The only field data that passed your criteria tests were in the Civic 84 and the Corona records. The data extracted can now be seen in the Output block, as shown on Screen 5-59.

A	B	C	D	E	F	G
RENTALS	RATE/DAY	YEAR	RENTALS	YEAR	ON HAND	RATE/DAY
C*	1	84	Civic	84	8	36.00
			Civic	83	5	32.00
			Colt	83	3	30.00
			Corona	84	5	36.00
YEAR	RENTALS	ON HAND				
84	Civic	8				
84	Corona	5				

Before we recap what we've covered in this lesson, try these other criteria entries.

- AND(F2 > 1,G2 < 36)**

- Go To cell C2 and blank it with this entry: **/Blank [RETURN]**

Any data in a YEAR field satisfies the non-selective (blank) criteria.

- Type **//Data,Extract**

5-137

5

CHAPTER

LEARNING TO USE SUPERCALC3

The formula you entered at cell B2 (a logical AND function) means this: If the first expression is true ($F2 > 1$, meaning if the data at cell F2 — the quantity ON HAND — is greater than 1), and the second expression is true ($G2 < 36$, meaning if the data at cell G2 — the RATE/DAY — is less than 36), then this record satisfies the criteria.

As stated earlier, the search operation you choose (*Find*, *Extract*, or *Select*) adjusts the formula cell addresses as it searches each record. For example, at the second record the formula is adjusted to $AND(F3 > 1, G3 < 36)$.

► Now try the criteria entries in the cells shown below:

	I	A	II	B	II	C	I
1		RENTALS		RATE/DAY		YEAR	
2		C*		$G2 > = 31$		83	Note: Entries at B2 and B3 actually display as 1.
3				$G2 < = 36$		84	

Because you added a row to the Criterion block, you need to change the Criterion range. It only takes a second or two.

► Type **//Data,Criterion,B1:C3 [RETURN]**

Note that the criteria entries in column A do not need to be deleted. You excluded that column from the Criterion block when you changed the Criterion block range.

► Do an **Extract**.

Data from the Civic 83 record was extracted to the Output block because it passed the tests in row 2 of the Criterion block (≥ 31 means greater than or equal to 31). Data from the Civic 84 and Corona records were extracted because they passed the tests in row 3 (≤ 36 means less than or equal to 36). You can enter as many independent criteria as you wish.

On your own, if you have a little more practice time, try some other test criteria, and repeat each type of search operation.

Remember to save your work in case you want to use it for future practice sessions. Save it as you would any other spreadsheet. Name the file LESSON9.

Note that additional application ideas, and advanced Data Management techniques, are included in the *Data Management* section of Chapter 3.

Here's a recap of the Data Management basics we covered:

- Enter your list of data (the database) anywhere on a spreadsheet.
- Define a range for the Input block (large enough to contain the database, or even larger, but don't let it overlap the Criterion or Output blocks).
- Define a range for the Criterion block, before or after you enter the search criteria.
- Enter your search criteria in the Criterion block. A search criterion can be a text match (with or without a wildcard), a number match, a formula, or a non-selective (blank) match.

- Use *Find* to highlight records that satisfy your criteria.
- Optionally, use *Remain* (before you cancel the *Data* command) to hold the cursor in place.
- Define a range for an Output block if you want to extract any data from the database.
- Use *Extract* to copy all specified data to the Output block if field data in the Input block satisfies your criteria.
- Use *Select* to highlight each record, one at a time, if it satisfies your criteria. Then extract specified field data from any highlighted record you choose.

SuperCalc3 remembers the current ranges for the Input, Criterion, and Output blocks, even after you Save and Quit. You can review previous range settings at any time by typing `//Data`, followed by Input, Criterion, or Output.

Database size:

There is no limit to the number of records in a multi-file database. If you split the database into as many files as needed, the number of rows per spreadsheet imposes no limit. For example, records 1 to 255 might be in a file named DM1.CAL, records 256 to 511 might be in DM2.CAL, and so on.

If all records need to be accessed from a single file, then 255 records per file is the limit if each record occupies a full row. If records are regularly added, deleted, and re-sorted, one record per row is most practical. If the number and order of records is fairly stable — even though field data is frequently changed — then you might consider placing two or more Input blocks side-by-side on a spreadsheet to increase the number of records in a single file.